THE PRACTICAL GUIDE TO WHAT'S ON AND WHERE TO GO

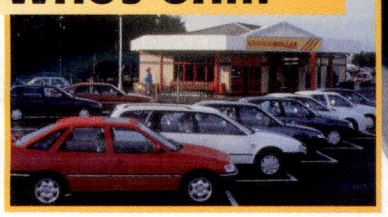
INTERNET

NOVEMBER 1994, ISSUE 2, £1.50

Hands on...

Getting to grips with ISDN access

Who's on...



EuroDollar and the Daily Telegraph take business to the Net

What's on...

Where's hot and where's not: over 150 servers rated and reviewed

Get on!

With our complete guide to ALL the UK access providers

Reviews...

Internet Anywhere...
Hotmetal... Telebit Netblazer...
KNX ISDN Terminal Adapter and more

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IBM makes its presence felt

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From Emap Computing

PLUS: LETTERS, EVENTS, THE GLOSSARY, HOW TO GET CONNECTED TO THE INTERNET – PAGE 44

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Well, what a month! Thank you for all your responses to the first issue – we've been overwhelmed with email from readers, most of it complimentary, some giving constructive criticism, but all of it welcome.

As you will see from this, our second issue, we've tried to take on board some of your suggestions, and to add the things you have asked for.

The first thing you'll notice is that this magazine is twice the size of the last – a trend we will be maintaining as the market evolves.

We have also redesigned **INTERNET** to reflect the way different sections of the magazine are aimed at different types of reader – from the complete novice (Get On), to the confident Internaut (Hands On), to the business person looking for commercial applications (Who's On). And of course, the What's On section will appeal to everybody.

Enjoy this issue and please keep the email coming.

Neil Ellul, *Editor*
neile@computing.emap.co.uk

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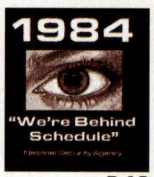

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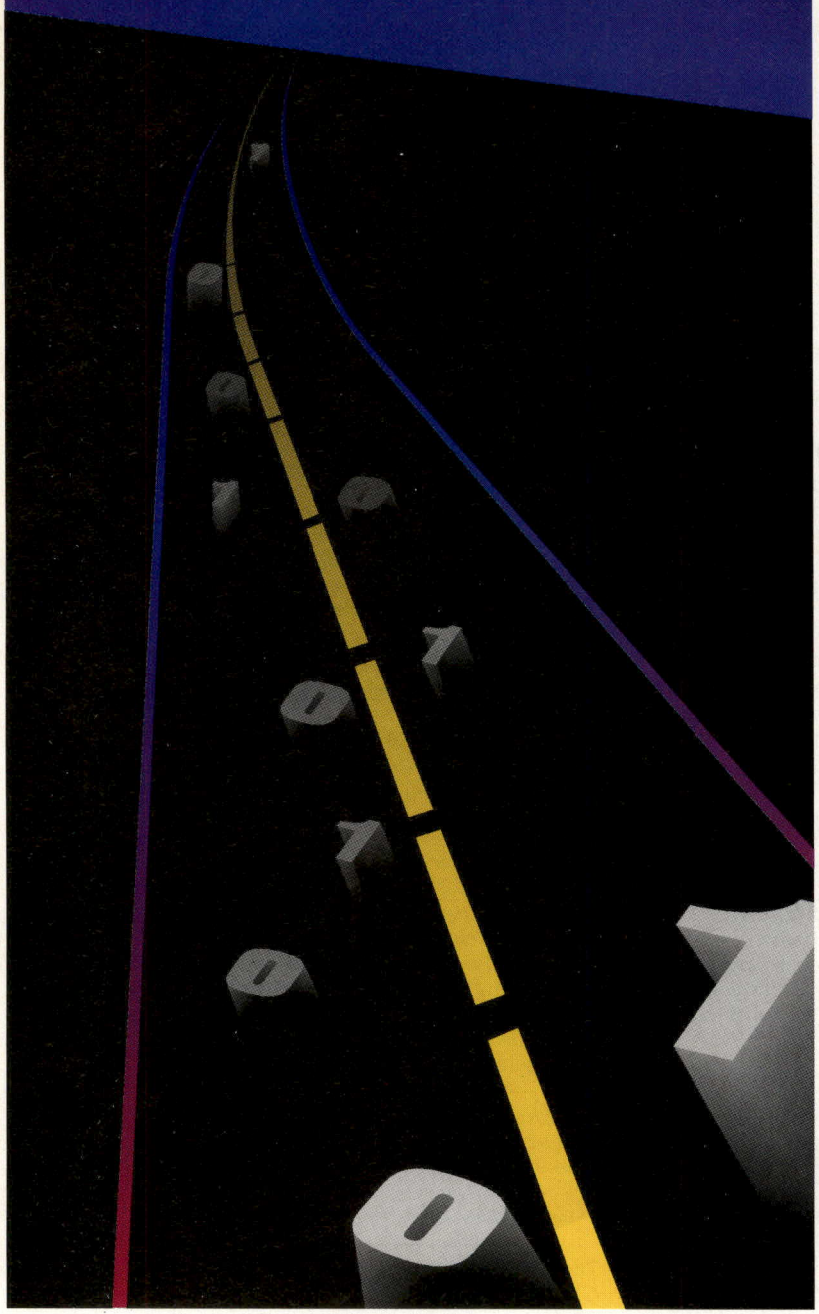

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news...

IBM puts ready-made connection in O/S2 box

IBM's new O/S2 Warp

IBM is claiming it is the first company to ship Internet-ready operating system software. Its new OS/2 Warp (OS/2 version 3) comes with standard Net facilities such as Gopher, FTP and Telnet. More significant is IBM's own graphical Net software, WebExplorer, which enables users to access WWW servers.

IBM is also promising one-button registration to the Internet via its own IBM Global Network.

The software supplied as standard with Warp, known as Internet Connection for O/S2, includes the requisite Net applications, and provides customers with three free hours of Net access.

Users achieve the Net connection by clicking on an icon modestly labelled 'IBM Information Superhighway'. At first users will have to download WebExplorer, which can be used in place of popular Web viewers like Mosaic.

There is also an OS/2 NewsReader for looking at Usenet conferences.

To help new users get the hang of Net surfing, IBM has created a 'fun page' which boasts reference points to the 'best of the Net'. Additionally, there are home pages on IBM's own WWW server for both its corporate and personal software divisions.

IBM's Global Network will initially offer 14,400 bps dial-up access using SLIP (Serial Line Internet Protocol). Jonathan Fleet, European EDI marketing manager at IBM UK, said that he saw no reason why IBM should not eventually provide Net access via ISDN, as well as modem, since the network already has this capability.

Furthermore, he pointed out that IBM has dual links from Europe to the Net in the USA – one from the UK and one from Holland. Both have a capacity of 2Mbps, which should ease the peak-times traffic congestion suffered by rival Net providers.

Charges will be $15 per month for an initial three hours and then $4 for each additional hour. IBM is promising to waive the $35 set-up charge as a promotion for the first three months.

The service started on 1 November and aims to acquire 5,000 subscribers in Europe in three months.

Fleet anticipated that next year the service will be extended to non-OS/2 users with software for Windows, followed by Unix and Mac software.

The IBM Global Network connection is effectively utilising Advantis, IBM's existing Managed Data Network, set up in partnership with Sears, Roebuck.

Included with Warp is IBM's own email program, UltiMail, which enables users to send mail to other Internet users or alternative systems.

For those who run DOS or Windows, Warp is already available priced at £85. However, there will also be a £112 version with IBM's own Windows built-in.

Information from GBIBM5LG@ibmmail.com

US companies spending millions on the Net

A major US study predicts that by 1998 US companies will have spent nearly three quarters of a billion dollars acquiring data communications services and equipment to support commercial Internet applications.

According to Michael Killen, president of Killen & Associates, which has produced the report, "We've calculated how big the market is now for information services and forecast that out to 1998."

The most rapid growth is expected in Internet transaction processing and money will be spent on software, modems and switches, and service charges to CompuServe and other companies which facilitate connection.

"In the near future, maybe a year from now, there will be big breakthroughs from a lot of companies. You will be able to dial up a retail store like Harrods, scan the displays floor by floor, and pick out an item and buy it," predicted Killen. "After 1998, I don't know what's going to happen."

The report has the snappy title: *The Internet: Impact on Commercial Transactions, Information Services, Email, Marketing Services, Enterprise Services and Operations.*

All-day Internet radio

This January, Internet surfers around the globe will be able to listen to a new 24-hour radio station broadcast over the Net. Not only that, they will be able to store, search and enhance the data stream with text and picture files.

Broadcast by the Internet Multicasting Service in Washington DC and carried by Radio Technology for Mankind (RTFM), the station will feature live speeches and debates from the US Government's House of Representatives and Senate floors by way of the Congressional Memory Project.

It will also broadcast lectures, educational programmes and performances from New York City's Kennedy Center for the Performing Arts, as well as recordings of book and poetry readings by famous authors.

But not everyone with Internet access will be able to pick up the radio broadcasts. Currently only those with super high-speed network data capability – estimated to be 100,000 users – can connect.

However, it's predicted that within a year many more PCs and network links should be capable of receiving the superspeed transmissions, and in the meantime everyone with an Internet link and a telephone line will be able to grab parts of the broadcasts from Radio Technology for Mankind's databases.

NeXT users get Web

Stepwise is a Net-based information service aimed at members of the NeXTStep/OpenStep community who want to communicate with others using this advanced object-orientated operating system from NeXT Computer.

To get to the StepWise WWW server go to `http://www.stepwise.com/index.html`. The system is still in its early stages but already has information on 200 NeXTStep developers and 500 products.

Stepwise claims the current level of interest in its service is running at 40,000 page accesses per month from 2,000 different sites. Better still, the service is entirely free to users, although the system is looking for donations!

FTP access is available via `ftp.stepwise.com` or email to `stepwise@stepwise.com`. For real NeXTStep addicts the system carries archives of the `comp.sys.next` conference as well as online versions of the NeXT In Line magazine.

Interestingly, Stepwise is running thanks to software under construction from White Light Systems. The company eventually hopes to market a commercial version of Stepwise.

Those looking for a platform to run NeXTStep could consider the object.station 41 from Cannon, which is designed specifically for the purpose. Supplied with built-in ethernet, a 500Mb hard disk and 16Mb of memory, it can be purchased direct from the USA for US $5,000 (about £3,200).

Contact `llarkin@ato.canon.com` or Freefone 0800 964981.

More information on Stepwise from `jonathan@whitelight.co.uk`

BT set to provide UK Internet services

British Telecom has confirmed it will provide Internet access, which is now expected by the end of November.

Rather than diving right in, it appears to be taking a cautious approach to the Internet, but officials are convinced that Internet connectivity will soon be required by almost all UK businesses.

Initially, BT will offer its business-orientated Internet services to customers requiring UK-to-UK services only, according to Adrian Edwards, BT's Internet project manager. "After the launch we will begin integrating wider connections to the US's MCINet. Eventually, we will have our own links into Europe," he said. The exact time-scales for the improvements are undecided and will be determined by future demand.

"Our business users are telling us that they want Internet access."

BT aims to appeal to businesses of all sizes. At the low-end there are plans for a premium dial-up service with dedicated modems for each customer. In time, shared TA ISDN 2 and 30 services will give way to similar premium ISDN services.

For larger customers, BT will be providing connections via Kilostream (64 Kbps) leased lines, GMS (X.25/frame relay) and SMDS high-speed connections. The expected flat rate charge for a dial-up connection will be about £100 per month. "We intend to be competitive," Edwards asserted, but he would not comment on plans to provide Internet services to homes or private individuals.

In response to questions about BT's dominant position in UK telecoms, he intimated that Oftel approves of the plans, by saying, "There is room for a number of commercially-orientated Internet providers in the UK."

Pipex sales manager, Mark Hugo, replied that, "For the last two and a half years, UK businesses have been telling Pipex that they want an Internet service, and Pipex has been largely responsible for bringing commercial-quality Internet to the UK...The BT announcement has something of a 'me-too' quality to it."

However, it has been suggested that BT is less threatened by Pipex or EUnet than by cable TV companies which may, in the future, be franchised to carry high bandwidth Internet services to millions of homes and businesses in the UK.

At first, BT's Internet dial-up service will start with only two POPs (points-of-presence), one in London and one in Manchester. Edwards said that additional POPs will be established based on demand.

BT is also looking at an 0800 service to cater for those who live in less populous areas.

BT will give customers more than simple access, explained Edwards. "We will provide software, modems, terminal adapters and routers as our customers require. We can provide 24-hour a day support as well, where necessary." BT is thought to be close to a deal to provide Netmanage Chameleon as the desktop TCP/IP suite for Internet connectivity.

BT's as yet unnamed Internet services are being driven by customer demand and it is planning, with no fixed launch date, to provide a WWW server, directory services and other unspecified services.

Email and access to Usenet newsgroups will be included on the company's list of standard Internet services. However, this could present problems for BT given the uncensored nature of some Usenet newsgroups. "There is no denying that objectionable materials are carried on the Internet," allowed Edwards. "However, BT is committed to positively vetting all material."

However, the job of Internet censor is a rather onerous and time-consuming one and civil libertarians may object to BT's self-appointed role as the Internet's moral guardian.

Net security for NetWare

An Internet security facility known as Fire*Wall is an inherent part of the new release (2.2) of NOV*IX for Netware from Firefox, launched at InterOp Paris in November.

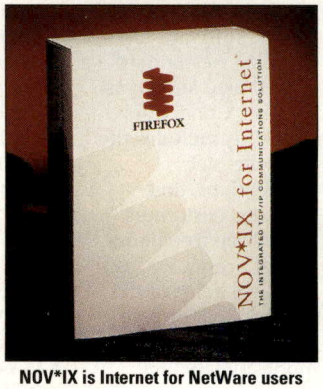
Fire*Wall enables a system administrator to control both outgoing and incoming calls from NetWare to the Internet. Rather than requiring all NetWare stations to run TCP/IP protocols for Net access, NOV*IX handles the NetWare-to-TCP/IP link at the server.

Users add Internet software to the standard NOV*IX Elite menu system. These modules include Telnet, FTP, Gopher and what Firefox claims is the first commercial version of Mosaic from Spyglass.

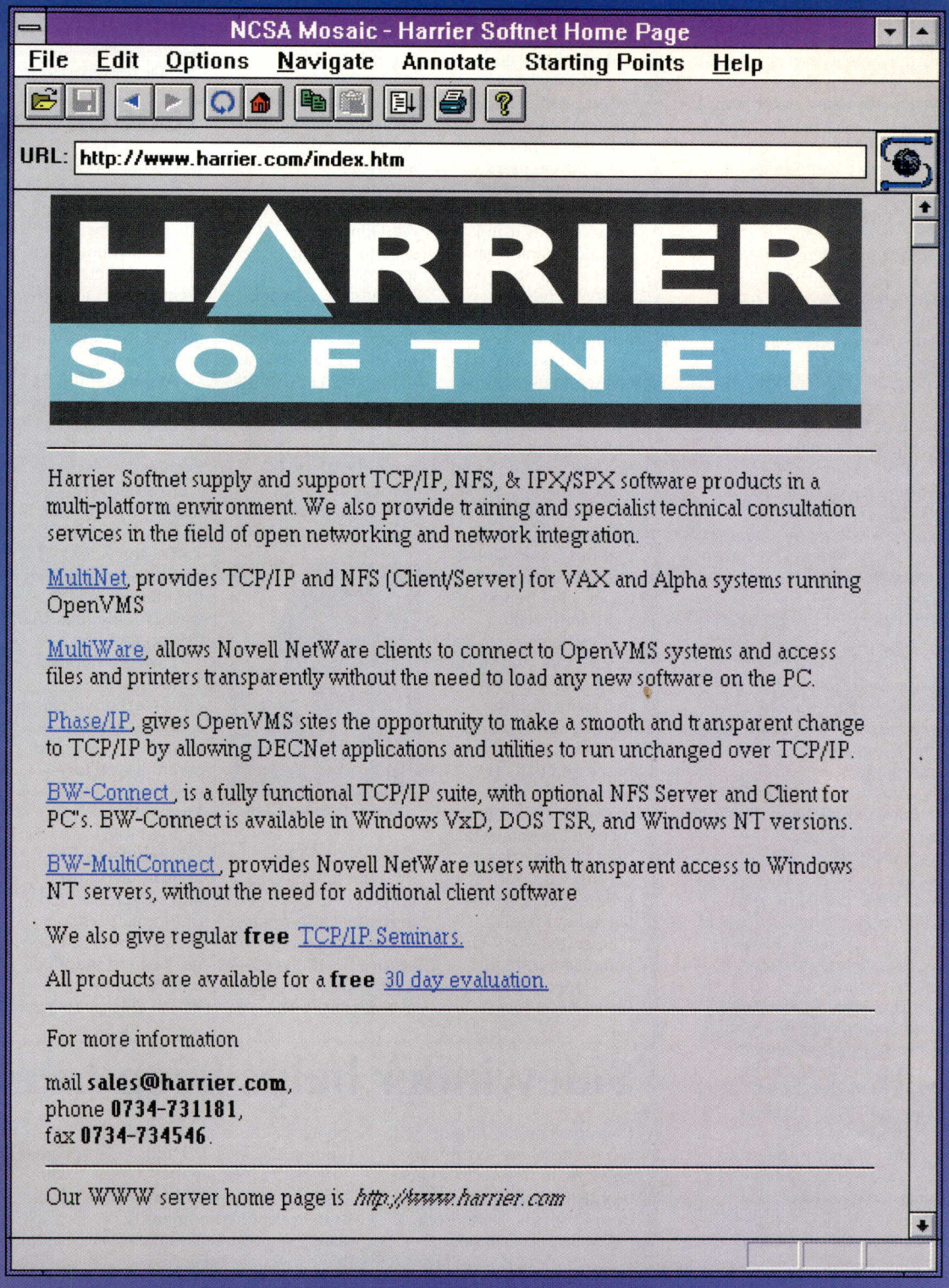
With Fire*Wall a manager creates a list of which external hosts and services are available and then assigns this privilege to a NetWare User Group. For example, a college can create a list which enables users only to look at hosts which possess the `.ac` academic suffix.

Fire*Wall also looks at the IP addresses of incoming calls to determine whether they should be accepted.

NOV*IX 2.2, which costs £850 for five users, inherits its Net facilities from NOV*IX for Internet which was first launched in September. Details from `firefox@firefox.co.uk`



NOV*IX is Internet for NetWare users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Shrink-wrapped for safety

European take-up of the Internet by commercial organisations has led to the availability of shrink-wrapped security products aimed at a lower level than existing firewall products.

Firewall devices sit on networks and handle security and in the past month two companies have launched new products.

Canadian security specialist Seachange has introduced Janus and SunSoft has launched FireWall-1. Both are priced at significantly less than existing high-end products such as Digital's Seal and Eagle from Raptor.

Both companies emphasise the transparency of their products, acknowledging the speed at which the Internet has taken off in the non-Unix community and the difficulty such users have in configuring security systems.

This is why both companies reason that a shrink-wrapped, plug and play product will score over more complex bespoke installations.

According to Peter Cox, European managing director of Seachange, most organisations that have opted for a bespoke system find them unwieldy and difficult to maintain. He said that Janus offered flexibility at lower prices than the larger systems.

The SunSoft offering has been configured in a similar way, with a centralised management core at the heart of the network. FireWall-1 is a modular product which, the company claims, offers an easy way to upgrade an enterprise network. Access can be controlled by the addition of extra packet filters.

Mosaic front-end for business info service

In a bid to win budding Internet business users, Individual has upvamped its First! online information gathering service.

First! for Mosiac, based on the First! program which delivers bespoke news to corporate users around the world, is designed for organisations using Mosaic for information distribution on internal WWW servers.

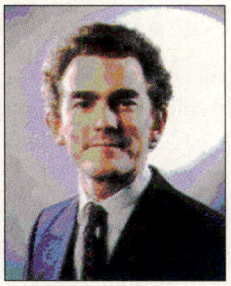
"First! for Mosaic is principally for new organisations that have chosen to use Mosiac as a viewer for their own WWW server, or indeed actually now operate a server," said Individual partner, Ted Howard-Jones. There is growing evidence that this is happening in the US and he expects the trend to recur in the UK.

First! covers several key sectors, and stories from over 400 global newswires, online information systems, and printed media, are processed daily by Individual's Smart news filter. Clients receive the database direct to their data centres with stories pre-filtered and pre-tagged in HTML (HyperText Mark-Up Language) format.

"Hyper text links in the stories allow readers to navigate among news topics, scan news briefs and jump to full-text articles," explained Howard-Jones. "Our clients use First! information for corporate strategy decisions, marketing projects, and business intelligence initiatives."

Howard-Jones was reluctant to give specific pricing information for First! for Mosaic, as "each customer's account is organised and billed on an individual basis hence the name of the service."

However, prices typically range from around £50 to £80 per user per year, which can work out at between



Individual's Howard-Jones

£40 to £50,000 for medium to large-sized corporate users. Individual also offers a cheaper scaled-down service for single users.

Contact Individual at thj@individual.com

The Tandem home page at http://www.tandem.com

Tandem eyes up Net

Having specialised for some while in providing non-stop computing for electronic commerce, Tandem is actively seeking ways to allow the Internet to be utilised for exactly the same purpose.

At present the majority of electronic commerce – such as EDI (Electronic Data Exchange) – is carried out over private networks using OSI standards such as X.400 and X.500. This contrasts sharply with the Internet, which uses TCP/IP rather than OSI protocols.

However, both Tandem and its customers are looking seriously at ways in which the Net could be employed for electronic trading. One initiative has been to join CommerceNet, the consortium of users and suppliers based in California's Silicon Valley. The other step has been to introduce InterNet Starter Kits which will, among other things, enable companies to build WWW servers based on hardware which guarantees operation 24 hours a day, seven days per week.

To give its customers a helping hand, the company has announced a tie-in with the UK software house, Logica, to provide Tandem users with help in customising the Starter Kits. This raises the intriguing prospect of Logica helping customers work with PD software.

To demonstrate its commitment to the Internet, Tandem has set up its own WWW server which carries company information ranging from product brochures to career opportunities.

Tandem also hopes to encourage companies to set up electronic store fronts.

Additionally, it is contributing towards RFC1006, which is looking at ways of integrating both OSI and Internet products.

Sidewinder helps keep Internet safe

Intruders on the Internet will have nowhere to run and nowhere to hide with a new product called Sidewinder, from Roseville, Minnesota-based Secure Computing.

The product, which uses US Defense Department network technology, was launched in October and is being heralded as a "breakthrough" in safe internetworking.

"We put Sidewinder on the Internet last month and let the hacker community attempt to penetrate the system," said Kermit Beseke, CEO and president of Secure Computing. "The Sidewinder system captured numerous attack scripts that could easily have thwarted other less sophisticated systems." Within a two-week period, not one of the hundreds of attacks got in.

Security is a major issue for the estimated 30 million users who have hooked up with the Internet. According to Secure Computing, in 1992, more than 1 million computer break-ins occurred and 85 to 97% of these intrusions went undetected.

The US $42,000 system includes a Pentium-based server, the Berkeley Unix OS and lifetime support. Organisations which buy Sidewinder will also receive a Security Alert Service which will keep them informed about current hacker techniques and attack scripts.

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- ❑ PathWay Client NFS Option
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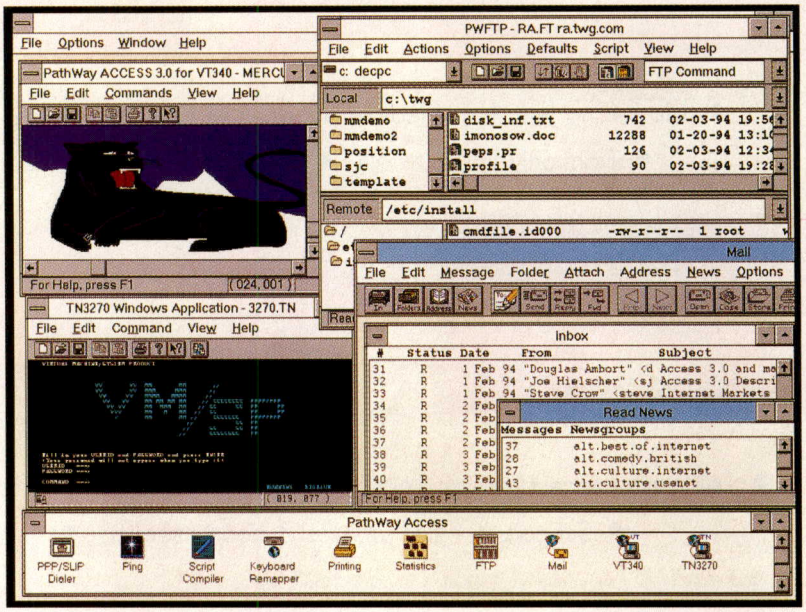
- ❑ NetBIOS over TCP/IP
- ❑ Remote Access (PPP/SLIP/CSLIP)



If you need to access TCP/IP networks from Windows, choose the product that gives you more than just a pretty user interface. PathWay Access 3.1 sets a new standard in networking by providing the most rock-solid and easy-to-use, complete TCP/IP solution available. PathWay Access 3.1 includes true Windows applications while supporting all the DOS applications you already have. So when your users need access to the full power of your TCP/IP network -- with the native user interface they prefer -- PathWay Access 3.1 is the best choice. Nothing else even comes close. Call today for details on our competitive upgrade offer available for a limited time only. And we'll also send you our free PathWay Access demo disk that proves why TCP/IP has never looked so good.

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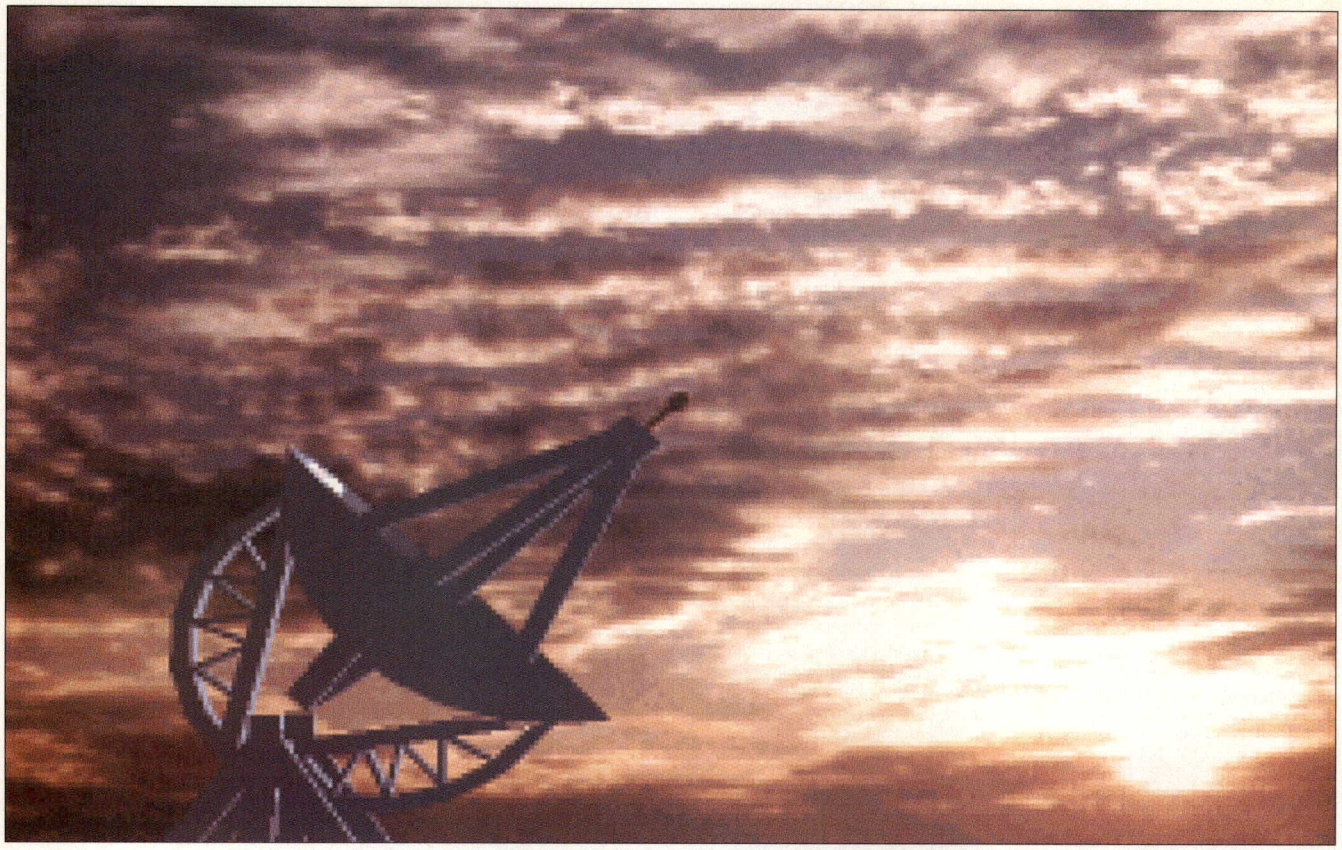
What's on and where to go



The Scottish Highlands and Islands Server (`http://nsa.bt.co.uk/nsa.html`) offers excellent information about this rural area, including good pictures and graphics

These listings are the most extensive ever published in a magazine. They are intended to provide a showcase of the good, the bad, and the ugly of what's being done on the Internet. In the pages that follow, you'll find the addresses of a wide range of services that are attempting to get to grips with the exciting new medium of the Internet. Judge for yourself how they are doing.

Only by experiencing the Internet will you begin to get a feel for how it could, should or shouldn't be done. We hope you'll learn how the Internet can play a part in your own profession or business. It's the way we're working to plan our own service.

If you have a favourite Internet destination, please email us so we can share it with our readers. Send details, together with what's so special about the site, to `whats_on@computing.emap.co.uk` (subject: issue 2)

Please note that Internet services are arriving and changing by the week, so some of the addresses in our listing may be different when you come to try them. At the time of going to press, all the addresses listed had been tested by our team.

Special thanks to the Internet service and equipment suppliers who've eased our way on to the Web. In particular: David Mooring of Pipex, John Stewart of Electric Mail, and Yuri Pasea of Kerridge Networks.

What it all means: Once you are connected to the Internet, all the addresses below should be easily accessible via a multitude of common shareware Internet packages. If you have any problems, feel free to contact us via email. The locations described break down into the following three groups:

World Wide Web: The majority of locations listed (those starting with http:) are addresses for Web servers. Type them into the Open URL window in your viewer exactly as they appear.

Gopher: These can be accessed from your Web viewer, but you will get better results if using a dedicated Gopher client. Type everything after Gopher:

FTP (file transfer protocol): Key in the full address, ie every character after the initial FTP: Depending on your software, you may have to put the pathname (all text after the first /) in a different dialogue box.

LISTING CATEGORIES

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HOME PAGES

Cityscape GoldSite Europe

http://www.cityscape.co.uk

Don't miss out on the more arcane corners of the Internet, but if you mean business, GoldSite Europe is the place to start. The presentation is professional, and you can access news (admittedly this is essentially ads); information about the Net; back issues of the *Guardian* on-line; and, most importantly, a whole host of other servers and services, including the BBC Networking Club, Live at the ICA and the Cybercafe. Goldsite Europe looks good, feels solid and generally lives up to its claim to be 'your one-stop Internet information site'.

Demon Internet

http://www.demon.co.uk

Unpretentious, not very informative home page for the UK's fast-growing low-cost provider. Because these things change fast, it's worth keeping an eye on.

EUnet

http://www.britain.eu.net

The second of the two major corporate Internet service providers, EUnet's home pages offer a straightforward description of its services, together with an interesting use of scanned images of a printed newsletter. EUnet has strong connections with continental Europe, which it exploits with occasional special international sports event results and reports services.

Pipex

http://www.pipex.net

Pipex has set itself up as the premier commercial UK service provider, and its approach is certainly very business-like. There are pages and pages of information here, details of affiliated providers in other European countries and routes to other destinations. A lot of the material is very technical, if that's what you need, but the mug shots of Pipex staff provide a human face and the bluffer's guide to the Internet offers a little light relief.

Rednet OnLine

http://www.red.net

There are three sections on this UK server. Local Services has announcements, items for sale and support groups. For information and help with using the Internet, go to the Laboratory. Enter the Black Hole and you'll be sucked into movie, image and sound libraries and be able to move onto other general, academic and corporate Web servers. What's particularly nice about this spot is the English accent. Its tone is efficient yet friendly and it's open without being overbearing, which does make a welcome change. You can email Rednet at webmaster@rednet.co.uk

ART

Andy Warhol Museum

http://www.warhol.org/warhol

Good example of how to implement an art gallery on the Internet. The Andy Warhol Museum in Pittsburgh does have the advantage of only needing to focus on the work of one artist. What's on offer are 'tours' of the physical museum with a list of pictures, together with a growing collection of samples of Warhol's work. Don't try this one with anything less than a high-speed 14,400 bps modem: downloading took almost as long as the artist's paint took to dry.

Le Louvre

http://mistral.enst.fr/~pioch/louvre/

This is a superb tour of the museum. There is a choice of two exhibitions; famous paintings and a mediaeval art display. Users are also offered a guided tour of Paris. Paintings are classified according to artist and, although not every work in the museum is included, there is an excellent sample of all the most famous. Users are even given the chance to hear background music as they peruse the exhibits, although the theme music from the Avengers is a weird choice.

OTIS

ftp:sunsite.unc.edu/pub/multimedia/pictures/OTIS

OTIS (operative term is stimulate) is an extensive Internet art gallery. It is well thought out, with some of the biggest sections those that explain about JPEG and GIF picture compression. You won't be able to view any of the art unless your system can handle such images. The material on view covers a wide range: photos, drawings, tattoos, raytracing, video stills, record covers, sculpture, and more. 'OTIS is open to all types of image-based expression' – indeed, some of the material is er, exotic. To subscribe to the mailing list, send a message to otis-request@cwis.unomaha.edu

Travels in Hypermedia

http://www.york.ac.uk/~jjrk1/

As well as links to pages of basic information about the Internet, such as the Big Dummy's Guide. This includes scholarly illustrated discussion of such issues as hacker culture and the politics of cyberpunk, pornography and the sexual aesthetic of the Internet.

Travels with Samantha

http://martigny.ai.mit.edu/samantha/travels-with-samantha.html

This was one of the winners of the Best of Web 1994, mainly due to the quality of the photographs. Travels with Samantha is the journal of a writer, Philip Greenspun, who travelled through the US and Canada. From a cursory reading of the text, it is not the quality of the writing that has been attracting all the plaudits but the 250 photos of landscapes, wildlife and young women.

Writing on the Wall

http://www.gatech.edu/desoto/graf/index.art_crimes.html

A varied collection of graffiti art from all over the world.

BANKS

Bank of Ireland

http://www.webnet.ie/cust/boo/indes.html

The Bank of Ireland is one of the world's first retail banks to experiment with using the Internet to reach its customers. At present, there's not a lot on offer: weekly updated foreign exchange information and the facility for customers of one of its branches to order bank statements. According to the results of a user survey reported on the server by the bank, the top Internet services requested by users are: order a statement; get a balance report; pay bills; perform credit transfers from account to credit card companies; get credit card transaction details; get mortgage and loan information; find out foreign exchange prices; and transfer money between accounts.
A small start, but it is still a beginning and at least the bank's got its priorities ready set for them.

World Bank

http://www.worldbank.org

Good example of how a publicly funded international body can make its work more widely available. There are complete lists of reports available, from Rainfed Rural Development in Morocco to Stabilisation and Adjustment in Argentina. Unfortunately, at present it's not possible to get entire documents: there are abstracts and key word searching, but to get the complete information, you're referred to your local World Bank office. Seems like a bit of a missed opportunity to us.

BOOKS

Cambridge University Press

http://www.cup.cam.ac.uk

Experimental service that shows some of the ways for book publishers to use the Internet. As well as obvious items, like an on-line catalogue, there's information about works in progress.

Future Fantasy Bookstore

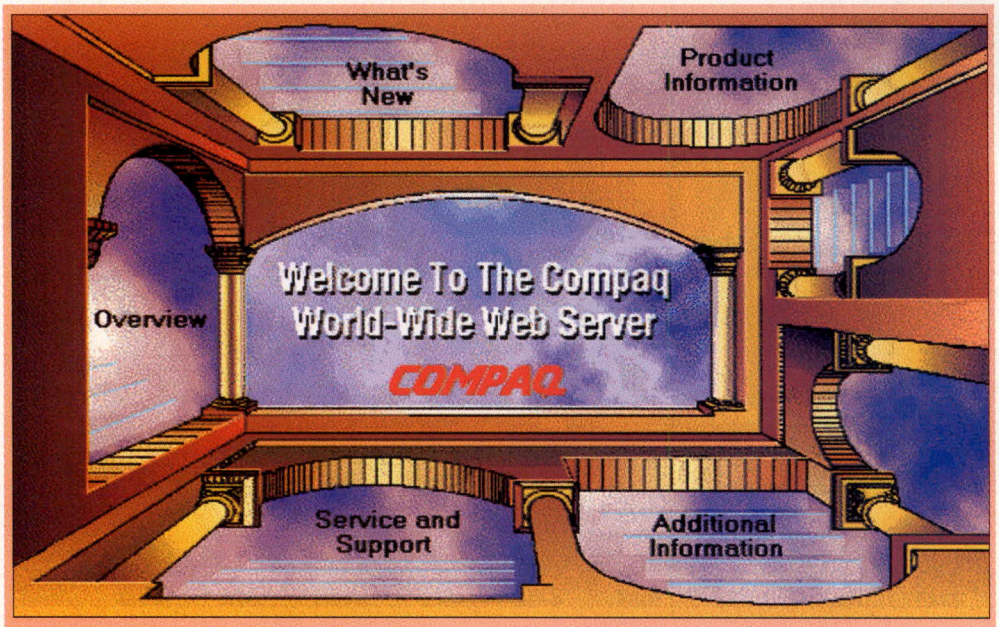
http://www.commerce.digital.com/palo-alto

The Future Fantasy Bookstore specialises in fantasy, horror, science fiction and mystery books. The company's new Web server allows users to browse the store, get samples of existing and new material, and look at the exotic cover art associated with this type of literature. At present the bookstore is not accepting payment via the Net for security reasons, but expect it to introduce an online service in the near future. The store can be emailed at futfan@netcom.com

BUSINESS

CommerceNet

http://www.commerce.net



Compaq

http://www.compaq.com

This is an excellent example of how a PC hardware server should be done. Firstly, the home page offers a choice of text or graphics. The subsequent index pages have been carefully design to fit neatly on a normal PC screen – easy to do, but hardly ever done. The contents is a good mixture of information and marketing material plus product support, including downloadable files. Early on, there's a page called Why We Are Here, which is devoid of the usual marketing-guff about leading consumers into the digital age. Other vendors on the Internet would do well to read these pages because some of them clearly have little idea why they're on the Internet.

CommerceNet is the consortium of US Silicon Valley companies which have come together to create an electronic marketplace. Its extensive Web pages track the development of that marketplace, with extensive examples of how doing business on the Internet is being promulgated. Essential reading for anyone looking at the Internet from a business or professional point of view. The future of doing business on the Internet will probably happen here.

DigiCash

http://digicash.com

Home page for the home of ecash, an initiative launched this year to make it easy to do business securely on the Internet. Electronic 'cash' is purchased from Digicash, then used to pay for a growing range of services. The system is the brainchild of a company with its roots in bank 'smart cards'. At present, it's all experimental, but the company hopes it will set a standard. The home page allows you to register from your own electronic wallet of ecash.

MecklerWeb

http://www.mecklerweb.com.demo.html

Mecklermedia is a US publisher of directories and magazines and organiser of the Internet World exhibition. MecklerWeb is an ambitious project that aims to bring together $25,000-a-year sponsors from among technology vendors, consulting firms, PR and ad agencies and others to set up an Internet-based "corporate communications and marketing system". See for yourself how they're doing: when we looked, micro-casting marketing messages through the Internet looked pretty dull.

Scottish Highlands and Islands Server

http://nsa.bt.co.uk/nsa.html

Compiled by staff at some BT outpost who presumably have little else to do, this promo for the Highlands and Islands seems at first rather arcane. There are sections on leisure and culture, sporting activities and the Gaelic language, but the pages about business activity and distance working in the region are suddenly very interesting. In fact there's a lot of good information here and the pictures and graphics, although they take about as long as the boat trip to the mainland to load, are high quality.

The Company Corporation

http://incorporate.com/tcc/home.html

The Company Corporation offers users a variety of business-related services. Among them is information on incorporating in the State of Delaware (very useful for those readers who are US citizens looking for tax breaks). There are also several catalogues of technical documentation. Since the beginning of this year, users have had to pay for this service. Among other offerings is a list of technical job vacancies, mainly in the California area.

The Internet Group

http://www.tig.com

The Internet Group is currently the leading doing-business-on-the Internet firm. As well as pages all about TIG's publishing, consulting and seminar services, there are also links to services offered by its clients, as well as sections of information about the commercial use of the Internet. If you're planning business or professional use of the Internet, TIG is an essential destination. Its Hot Sites page offers links to commercial use in categories that include: travel, government, financial services, legal services, shopping malls, storefronts, and more.

COMPUTING

Apple

http://www.apple.com

This site offers a plethora of information and resources; everything from Apple's press releases through to current product information, technical support and developer information, together with links to other Internet sites that hold Apple-related information.

Dell

http://www.us.dell.com

Unintentionally pompous Web debut by one of the world's top PC makers. Click on the big Dell logo above the few hypertext items (spare parts, technical support, BBS files, catalogues, press releases, Dell online service, Dell international phone list) and the next thing you see are pictures of company founder Michael Dell and a 'bloke' called Joel Kocher. Apart from Mike 'n' Joel's grannies, who'd want to see that? Or read the guff below about how great the Dell company is? There is something innovative to be found here though. Click on 'see a graph of Dell stock performance' and you'll see the latest information delivered by the MIT Artificial Intelligence Laboratory's Experimental Stock Market Data Server.

Digital Commercial Services

http://www.commerce.digital.com/

Designed to show off what Digital can do, this is an almost inexhaustible collection of tourist information about the town Palo Alto – essential reading if you're holidaying there but of only marginal interest if you're not. Along with out-of-date advice on how to avoid traffic jams during the World Cup, the Caltrain timetable and a promo for Cloud Gallery, a CD-Rom of 'passionate and powerful sky backgrounds', there are screens and screens about Mary & Michael's Wedding Photography. This material is hardly a serious advert for Digital, though it's not without its amusing moments.

Digital

http://www.digital.com

This is the main Digital home page and it provides links to other DEC web servers and to professional associations sponsored or supported by DEC, such as the Boston Computer Society. It all adds up to a pretty comprehensive service to Digital customers, devoid of fancy graphics and marketing puff. There are a few whimsical links to the likes of the Palo Alto Cloud Gallery and the Future Fantasy Book Store, but on the whole it would benefit from being more colourful.

Harrier Softnet

http://www.harrier.com

Here we have a simple, unpretentious set of pages giving technical information about TCP/IP products distributed by Harrier in the UK and France. Includes seminar dates as well as in-depth technical information.

Net T-shirt

http://http.cs.berkeley.edu/~raph/tshirt.html

Yes, these pages are about T-shirts. It's not exactly Carnaby Street but you can pick up this year's fashion item to die for – the 'Anti-Clipper' T-shirt. Or do you see yourself in the 'Internet Smiley' – it carries a lot of cachet in some circles, so I'm told. In fact I almost bought the 'Cypherpunk' design for a friend, until I realised that although I could place the order instantaneously, there is, as yet, no way of sending the T-shirt itself down the line in time for his birthday on Friday. Still, perhaps I'll get him one for Christmas.

Hewlett-Packard

http://www.hp.com

Recently-improved service from HP which now includes access to drivers and patches for peripherals and other hardware products. This is a good example of how a properly set up Web server can deliver easier, cheaper, and better support than that which has been available through CompuServe or hard-to-get-the-numbers-of bulletin boards.

IBM

http://www.ibm.com

Colourful compendium of IBM marketing information with much emphasis on the company's technology prowess. No technical information or support information: if you're having problems with OS/2 release 3.0, you'll have to look elsewhere. There is, though, the novelty of a spoken message of welcome from IBM chairman Lou Gerstner. One of the strong points of this site is that it seems to be updated regularly. Could do with more technical 'bottom', though.

Intel

http://www.intel.com

Mixture of reasonably-presented product and support information, together with a list of sometimes-interesting 'off-ramps on the infobahn.' One aspect of the Intel Web server that is well done is a section of usage statistics, including graphs. For anyone looking for clues as to the profile of Internet users, there are some pointers buried here.

Lotus Development

Email: support@ccmail

If you want electronic mail access to support for Lotus's cc:Mail – one of the most widely-used commercial electronic mail packages – this is the place for it. Can a Web server from Lotus itself be very far behind ?

Microsoft

http://www.microsoft.com

This is a major Web effort by Microsoft that shows the way for computer industry companies to use the Internet to extend the services they offer their customers. Although the Web service is still in development, there's a large amount of information for developers and Microsoft product end-users. The Web server includes sections of information about Windows and Wolverine – the new 32-bit TCP/IP stack for Windows. It's also possible to get access to patches, sample code, and text files on existing products. This will be a major Internet resource. It is also available via FTP at ftp.microsoft.com and Gopher at gopher.microsoft.com

Novell

http://www.novell.com

Novell, the company behind the NetWare network operating system, has made a big move recently to shift its support and information services to this Web server. All of what's been available through CompuServe Netwire service for some time is now on the Web server. If you have local-call or ISDN Internet access, this makes the Web server a much cheaper way of getting support than using the CompuServe service. In a simple and straightforward fashion, Novell is up there with Microsoft showing how the Internet can be used to deliver product information, patches, updates and support.

Silicon Graphics

http://www.sgi.com/

This is a stylish and colourful selection of offerings from Silicon Graphics, maker of design, graphics and animation workstations. It contains the usual lists of products and recent press releases, together with more off-the-wall sections like Free Lunch, a free selection of graphic images and movie clips created

Interactive Frog Dissection

http://curry.edschool.virginia.edu/~insttech/frog

This online tutorial is one of the few genuinely valuable educational resources I've come across on the Net. It sets out to teach you how to be nifty with a knife in the biology classroom and is aimed at US high schools, so it's suitable for UK secondary students. The text is admirably clear and the movies alarmingly to the point. This is not for the squeamish, but then again watching a frog being hacked to pieces on screen is preferable to doing it yourself.

by SGI's customers on its graphics workstations. All this plus a list of technical documents and information for stock investors in the company.

UK Unix User Group

http://web.dcs.bbk.ac.uk/ukuug/home.html

All things Unix can be found here, courtesy of the UK Unix User Group. Membership details, a summary of the organisation's newsletter and links to other relevant sites can all be accessed, plus a substantial software archive. If you're into Unix in a big way this is a must.

WordPerfect

FTP: ftp.wordperfect.com

A dull effort by WordPerfect: all you get is access to product literature and the cost of being supported by telephone. No obvious access to patches and fixes or dialogue about new products. Presumably that will come...

EDUCATION

The EnviroWeb

http://envirolink.org

Very impressive at first sight, the EnviroWeb claims to be the largest online environmental information service on the planet. All the sections boast the prefix 'Enviro'; there's an EnviroFreenet, an EnviroForum, an EnviroNews service and so on. However, many of these areas are currently under construction and in practice there's not a great deal there yet. If you're interested in the environment, this is one to watch.

Interpedia Project

http://www.hmc.edu/www/interpedia/index.html

The Interpedia Project aims to bring an on-line encyclopedia to the Internet and its Web site is the focal point of the activity. Interested parties can find out more about the project, and obtain details on current and experimental information resources around the Net.

The Exploratorium

http://www.isacc.exploratorium.edu

Great example of how to 'do' a museum on the Internet. Not only are there the usual pages there: opening hours, what's on, and how to get to the San Francisco-based Exploratorium, but the Web pages also attempt to bring to life some of the museum's 650 interactive exhibits: from a 'duck into' kaleidoscope to the Ames room (it has no square corners). To get the full effect of the Exploratorium pages, your system needs to support the JPEG picture compression standard.

The Natural History Museum

http://www.nhm.ac.uk/

Workmanlike start for the first major UK museum to enter the age of the Internet. The service consists of a set of pages about the museum's opening hours, exhibits and special services for school parties. There are some pictures of what's on show and access to its catalogues. In addition, there are links to other info sources about the earth and life sciences – useful for browsing researchers. A nice touch is that every web page has the names of two people responsible for its content, neatly personalising what could otherwise be a large and impersonal institution.

Websters

http://c.gp.cs.cmu.edu:5103/prog/webster

Stuck for a definition of a word? The Websters Web site contains an online version of the famous dictionary, although the word you are looking for may not yet be on there.

ENTERTAINMENT

Bundyland

http://www.eia.brad.ac.uk/mwc

For fans of the cult show *Married With Children*, this site is a must. Providing everything from video (MPEG), sound (.WAV and .AU) samples from the show, to a huge number of stills, most of which seem to be of Kelly (Christina Applegate), the family's daughter.

Cardiff's Movie Browser

http://www.cm.cf.ac.uk/movies

Search for any film, character or actor, using either the forms-based browser or pages for those with non-forms browsers. There is also an opportunity to register votes for each film and contribute any credit information that you can. Some references contain title outlines, quotes, gaffes and other information – one of the UK's finest Internet sites.

The Church of the Subgenius

http://www.iona.ie/www/hyplan/jmason-data/slack.html

Weird. Worth visiting as a reminder that computers are dangerous in the hands of the mentally unstable.

Conservatoire National

http://www.cnam.fr

Some of the main pointers on this site don't seem to be available. There are two curiosities: one is a tour of Paris Louvre,the other, entitled 'Femmes, femmes, je vous aime!', is a page with an inline image of a bikinied or naked woman on it. Reload the page and the woman changes. There if you need it. One feature, though, is a good example of a picture browser. It takes files from newsgroups (such as alt.binaries.pictures.misc) and compiles them into inline contact sheets.

CyberSight

http://cybersight.com/cgi-bin/cs/s?main.gmml

An alternative home page, devoted to preserving 'the unconventional nature of the Internet'. Drop-down lists will take you to Cybversive, to what is fun, to what is arty. We spent some time reading a comprehensive tutorial on how to pick locks; apparently, it's not that difficult but don't try it at someone else's home.

Cyber-Town, Arts and Leisure

http://www.cityscape.co.uk/cyber-town/index.html

Home page to fun and interesting sites on the Net, as well as a place to learn more about the Internet. It points you to places that are exotic, such as the Gates of Darkness, or educational, such as the Louvre. A good page for recreational use.

Computer Games

http://wcl-rs.bham.ac.uk/~djh/index.html

If you're interested in computer or video games, this is the Web site for you. It has numerous links to games-related topics, including Usenet news groups, plus an online version of Game Bytes magazine. You can also gain access to FTP sites containing demo versions of games.

Best of the Web Awards

http://wings.buffalo.edu/contest/

This site contains a list of the world's finest Web sites, as declared at the May 1994 International WWW Conference in Geneva. It's divided into different categories, such as best commercial site, best entertainment site, best navigational aid, best document design, best use of interaction. Make your own mind up.

Big Mac's Monty Python Archive

http://www.xs4all.nl/~bigmac/python.html

Visit this site for a copyright-abusing compendium of Monty Python's Flying Circus pictures, clips, audio and scripts. The big drawback for Python fans is that the only way to download them is to pay in DigiCash (see entry in the business section). Perhaps the wackiest ever way of trying to create a de facto standard.

Klingon Language Institute

http://www.kli.org/klihome.html

Completely straight-faced and serious server dedicated to the promotion and study of the Klingon language – as used by the menacing aliens from the Star Trek TV and film series. Even if you're not a trekkie, this is worth a look because of the quality of the execution of the server, in particular the use of the Internet's ability to deliver sound samples. Here, they are used as elegantly-written hypertext items to sound out the words and phrases used in the text.

The Creative Internet

http://www.galcit.caltech.edu/~la/creative.html

A major source of information about pop culture, with extensive sections on music and television. The Complete TV Guide includes the 'Ultimate TV List' which contains more than 135 links to information about 35 television series. The best coverage is, unsurprisingly, for *Star Trek*, with *The Simpsons* and *Married With Children* following close behind. The lists include newsgroups and mailing lists, as well as Web pages. The 'Ultimate Band List' offers over 752 links to information about 177 bands. There's also what's claimed to be the Internet's 'hottest music links'. Try them and see if you agree.

EXHIBITIONS

The Interface Group

http://www.comdex.com:8000

The Interface Group is the organiser of the major Comdex series of computer trade shows. Its workmanlike set of Web pages offer exhibitor lists, conference schedules, travel and accommodation, and visitor registration information. At present, though, you can't register on-line for any of the events – an application that surely can't be far off. An important challenge for exhibition organisers is to keep their pages up to date. When we looked, Interface's lists of exhibitors were two weeks old.

Ziff-Davis Expos

http://www.zdexpos.com

A notably appaling-looking home page and poorly-structured information mar a collection of web pages that provide exhibitor lists, conference programme details and other information about the Networld+Interop exhibitions in the US, France, Germany and Japan. In what is a first, ZD offers online registration for events. This server is one to watch: the company plans to run Internet exhibition 'events' alongside its physical shows.

FINANCIAL

Federal Reserve Bank of NY

Gopher: gopher.csc.fi/11/other/intedu/usg/money

Here is a Gopher site giving fairly current information about the Federal Reserve Bank of New York's spot exchange rates, as well as documents on other FRB and Treasury statistics, such as historical money stock data and Treasury yield curve data. There is also a document of exchange rate trends. Keep your calculator handy.

QuoteCom

http://www.quote.com

Extensive, highly developed, and witty stock market information service. One of the best examples around of how to use the Internet to sell a service. A limited amount of data is free, the rest costs, but the charges are all broken down into small amounts. A basic service costs $9.95. London financial market data costs an additional $19.95. These pages should be essential reading for anyone considering offering an Internet-based commercial information service.

FOOD

Country Fare Restaurant

http://www.service.com/cf/home.html

Visiting Palo Alto? Unlikely, but at least you can whet your appetite by browsing the menu at the Country Fare restaurant, in the most Internet-ed town in the world. Billing itself as an oasis amongst trendy establishments, this entrepreneurial restaurant offers sample recipes for downloading, and online ordering of recipe books. You can register your name to receive mailings about menu changes and offers. Whoever is in charge of the marketing, however, ought to reconsider the attraction of Whimsical Salt and Pepper Shakers!

PizzaNet

http://www.pizzahut.com

Another experimental commercial service, this time in the fast food sector. At present you can only get actual deliveries in California, but since the server is in far-away Kansas, there's no reason why this electronic storefront should not come to a Pizza Hut near you. That is if it turns out this is a way consumers like to buy.

GOVERNMENT

Department of Health

http://www.os.dhhs.gov/

The US Department of Health server contains useful information on finding your way through the US health service, and public access information on topics such as cancer and Aids.

FedWorld

http://www.fedworld

Test Web server set up by the US Government – a graphics-intensive home page that can take a long time to load. We had more trouble than usual getting connected, even during US night time. When you do, you get links to a growing database of information from one of the world's largest bureaucracies.

Information Market Europe

http://www.echo.lu

Recently-opened server with detailed information all about the European Community's initiatives and research reports for the information market. Comprehensive, worthy stuff, but we're still wondering what the report on Dedicated Road Infrastructure for Vehicle Safety in Europe is doing there.

Japan Prime Minister

http://www.kantei.go.jp

"This server is located in the Prime Minister's official residence in Tokyo Japan. This service is only an experimental one, not an official service." That's about all you'll get from this inscrutable server, apart from some general information about Japan. Not likely to become one of Today's Cool Places (see Tools & Info).

LIBRARIES

British Library

Gopher: gopher.bl.uk

Gopher-based pilot service that provides a marked contrast to what's on offer from the US Library of Congress. The service, dubbed Portico, includes information about how the library is organised, how to use it, and a notice board. It's also possible to search documents by key words. Given the library's years of experience in online information, one would have expected more excitement.

DTB Information

http://www.dtb.dk

What 'DTB' actually stands for doesn't seem to be explained, but these pages appear to be concerned with Danish technical libraries. This can be deduced from a map showing where the technical libraries of Denmark are located. However, despite the fact that most of this information is in English, with only a smattering of what one assumes is Danish, it has to be said that it's all a bit incomprehensible.

Educational Texts

Gopher: etext.archive.umich.edu

This archive contains hundreds of thousands of words, ranging from the complete works of Shakespeare to the script of a 'lost episode' of Star Trek. Only pornographic images are banned. Consequently, warns the archivist, users may find some of the material offensive. We take his word for it, but despite fairly extensive trawling, the most offensive stuff we came across was some truly appaling poetry. This site can also be accessed via FTP at the same address.

Library of Congress

http://lcweb.loc.gov/homepage/lchp.html

Attractive, colourful front end, whose immediate drawback is the time it takes for pages to load but it's worth the wait. Apart from the US government information and reference library sections you'd expect, there are electronic versions of recent exhibitions at the library – complete with photographs and illustrations. There are also pages of the Global Electronic Library which are currently under construction.

Vatican Library

http://www.ncsa.uiuc.edu/SDG/Experimental/vatican.exhibit/Vatican.exhibit.html

Visit several virtual 'rooms' in the Vatican including a library, a music room and a nature room.

WWW Virtual Library

http://www.cern.ch/hypertext/datasources/bysubject/overview.html

The extensive WWW Virtual Library is a powerful search tool that allows you to find information on almost any of the world's Web servers through user-friendly key word searching. For users of WWW browsers like Mosaic, this is a vital address to add to your hotlist.

MUSIC

Elvis Presley

http://tamsun.tamu.edu/~ahb2188/elvishom.html

Yes, Elvis is alive and living in cyberspace. Created by schoolgirl Andrea Berman to 'honour Elvis and his cultural and musical legacy', this shrine is a must for fans. Visitors can take a tour of Graceland, starting outside those famous gates. Listen to sound clips from classics like Love Me Tender, Heartbreak Hotel and Hound Dog.

Empty TV

http://www.galcit.caltech.edu/~ta/mtv/mainhtml

A parody of Music Television (MTV) and Adam Curry's Metaverse (see below). It can, however, be hard to get on to.

Metaverse

http://www.metaverse.com/index.html

This is a US music and entertainment service that acrimoniously grew out of MTV (Music Television). MTV is currently suing to get the exclusive use of the domain name mtv.com, the previous name for the Metaverse Service. As well as latest details of this David v Goliath legal battle, there's a range of sections of information about concert tours, new releases, videos, and unsigned bands promoting themselves. The service has become more commercial recently, with reader offers and shopping being added to the mix.

Planet Starchild

http://www.mcs.com/~bliss/starchild/home.html

A surprisingly business-like board covering the entire constellation of indie music. Although still under construction, the architecture has been well thought out with easy-to-follow menus and hints. Some of the featured artists offer downloadable self-running promo kits for you to sample. Not for John Denver fans.

Rolling Stones Web Server

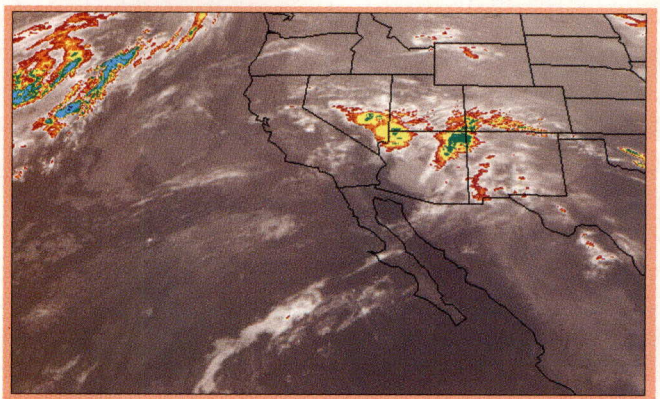
http://www.stones.com

Set up to promote the Stones' recent Voodoo Lounge album and tour, the stones.com web server contains tour dates, text and video interviews with members of the band, and the promise for autumn 1994 of a live concert broadcast over the Internet. If it works, it will be one of the world wide web highlights of the year. The server is marred by eccentric design, which involves a large number of pictures of the Stones' trademark logo before you reach any text. We tried it twice before we realised the absence of text at the top was nothing to do with a transmission error. The video clips are a great idea, but in the time it takes to deliver the Quicktime movies down even a fast modem connection you could form your own R&B covers band.

NEWS

Chronicle of Higher Education

http://www.chronicle.merit.edu



The Daily Planet

http://www.atmos.uiuc.edu/

Brought to you by the Department of Atmospheric Sciences at the University of Illinois, this server has meteorological maps, satellite images, pointers to sources of climactic data and 'instructional modules'. Although it's aimed at the serious sky watcher, it's also a good place to pick up titbits to toss into general weather chat. This site also has one of the best designed contents page graphics on the Net.

Straightforward adaptation to Web version of a weekly for US academics. The service includes the jobs advertised in each issue and, interestingly, covers things around the publication itself rather than merely 'shovelling' on the magazine's contents. Someone's thought about this.

Commercial News Services

http://www.jou.ufl.edu/commres/webjou.htm

Provides a comprehensive – but surprisingly short – listing of current Internet-based news services: from Palo Alto, California, and Halifax Canada, to Sardinia, Italy, and Warsaw, Poland. There's also a reference to Campus Newspapers on the Internet. If you're interested in what the electronic news media of the future will look like, this should be your first port of call.

Electronic Newsstand

Gopher:gopher.enews.com

One of 1994's most highly publicised Internet businesses, the Electronic Newsstand has been set up as a browsing medium for users who may want to buy subscriptions to magazines. The problem with the concept is that the Gopher-based service is hard to penetrate and we couldn't find the magazines. Luckily, we'd seen it before and remembered that when you do find the magazines, all you get is a table of contents and subs rates.

Guardian Online

http://www.gold.net/online/

Innovative UK national newspaper service supported by CityScape. On offer is access to full text of the paper's Thursday Online section, together with special arts features. For access to the newspaper articles, the service includes a key word search engine that's baffling until you get to know it.

NSF Network News

http://www.internic.net/newsletters

Free newsletter about the evolution of the Internet. Available in hard copy and electronic formats. To subscribe, email to newsletter-request@is.internic.net. Web pages include back issues.

Norfolk Virginia-Pilot

http://www.infi.net/pilot/vpls.html

Example of a US local paper online. When we dropped in it said more about the copyright and rights problems facing electronic news – according to a sad message from the editor, they weren't able to publish any because of a wrangle with the AP news agency. Nice to be able to read about the day's weather and travel information, though, and to look at the classified ads and local dining options. The *Pilot* is one of the publications referenced to by Commercial News Services on the WWW (see above).

Palo Alto Weekly

http://www.service.com/PAW/home.html

This is the on-line version of a free newspaper covering the much-documented Palo Alto area in California. Although its actual content is of little interest to out-of-town readers, the format illustrates what's possible in an electronic local newspaper.

Power PC Magazine On-Line

http://power.globalnews.com/

Power PC magazine, edited by industry man-about-town Chris Rose, publishes every two weeks and offers a neat twist to the usual electronic mag story. When you subscribe (at the moment this means register your name for free), you receive email on each publishing day showing the contents page. This alerts you to the fact that you can then retrieve the stories. Big stories are subsequently sent to you at any time, when they break, by email and they appear under the heading PowerFlash. This site's access is supplied by BT.

The BBC Networking Club

http://www.bbcnc.org.uk/

In mid-1994, the BBC launched its Networking Club. After a shaky start, the service has now settled down. You can see what's on offer by going to this Web server. Some of the information is free – notably BBC TV and radio programme listings – but most sections are only available to club members. Membership costs £5.00 per month which will also get you access to Auntie, the BBC Telnet site, allowing participation in conferences with programme makers, access to files and other information. There are some good ideas on show here, such as Babbage, a cartoon character that helps Internet novices gain some experience, and then points you to some famously diverse sites such as the Louvre

The Electronic Daily Telegraph

http://www.[to be announced]

Due to start live service shortly after this issue of **INTERNET** hits the streets, the appearance of the UK's biggest-selling quality newspaper on line is a landmark event on the Internet. The paper promises a full news service, with each day's edition updated as often as the real thing. For details, call 081- 371 1200.

Weather

http://www.cs.ucl.ac.uk/misc/weather/weather.html.

Digitised satellite pictures for download. See the downpour before you go out to experience it, courtesy of University College, London.

PUBLICATIONS

Electronic Journals

http://info.cern.ch/hypertext/datasources/bysubject/electronic_Journals.html

What it says – a listing of magazines and periodicals available via the Internet, including links to either details or the full text of the publications. Those mentioned range from *3W*, the UK-based 'global network newsletter', to *The Electronic Green Journal* and *USA Today*. The file is extensive but users are asked to send news of additional titles. There is also some useful info on using the Net.

Factsheet Five – Electric

http://kzsu.stanford.edu/uwi.html

Addicted To War, Tarot News, Psychotronic Video – all zines you don't know exist until you stumble upon this site. These weird publications are indexed, summarised and sometimes reviewed. The lists seem pretty exhaustive, but then we can't claim to be experts in this field.

Wired

http://www.wired.com

Until recently, the world's hippest publication, a style magazine about technology, delivered some of the world's dullest Web pages: subscription rates, back issues, the latest issue contents page, and a promotional video that was more beneficial for testing your Web browser set-up than to watch. Now, though, Wired is steadily evolving its electronic product into HotWired, a much more interesting looking service. Keeping checking on this because it's getting better all the time, and the publication itself is soon to distributed in the UK by the *Guardian*

PUBLIC ACCESS

Center for Civic Networking

http://www.earthweb.com:8000

Boston-based organisation that helps community and non-profit organisations exploit the Internet's potential for low-cost publishing. Consequently, the Center's home pages offer links to a wide range of other places.

Panix

Gopher: gopher.panix.com

New York-based public access Internet service where 'anything legal' goes. At present it's no Manhattan Cable, offering as it does a mild mixture of New York City and restaurant information together with some unusual specialist sections, such as the one containing technical and chemical information about photographic film, and the MIT Guide to Lock picking.

RELIGION

Lubavitch Jews

Gopher: lubavitch.chabad.org

Gopher site for information regarding Lubavitch Jews. Readings from the Torah, customs for barmitzvah and articles on Lubavitch activism make this a good site for textual information on many aspects of Lubavitch life. There is even a guide to Jewish holidays.

SHOPPING

Burlington Coat Factory

http://www.coat.com

This is an experimental service being run by a US 'outerwear' retailer – "This is a work in progress and is subject to changes in focus" warns the home page. The service offers users store location information and access to an illustrated catalogue of the merchandise on offer. To generate feedback on what users think of the experiment, Burlington offers a $5 voucher for all email reaction.

Downtown Anywhere

http://www.awa.com/Shopping/Library

A place where you can 'browse, learn, share and trade' or, more elliptically, it's a 'virtual salon for the marketplace of ideas'. One of its best selling-points is the shopping opportunities. You can buy a range of books and equipment, or how about a WWW T-shirt, just $13.95 from the Downtown Anywhere Souvenir Shop? Pay by credit card or open a DA account so you can't overspend your limit. There's also a library, museums, a

financial district and a sports arena. It takes time to find your way around any new place but exploring the streets of DA is both fun and worthwhile.

Estate Agent

http://www.gems.com/realestate/greg/20/1r.r.20.3.html

Fancy moving to South Africa? That spare 4,250,000 Rand will come in handy to purchase a thatched cottage that's on offer there at the moment. Unlike their UK counterparts, these realtors are unconstrained in their prose. Only three of the nine bedrooms are en suite and only two of the four garages have automatic doors, so you might want to look elsewhere. There are some nice photographs though, which you can download as you visit each room.

EuroDollar

http://www.eurodollar.com

You'll need to watch this space, because 'services will be appearing here as soon as they are developed'. At the present time, the only web service available was a rental office branch list and a form for a EuroDollar charge card.

Internet Presence and Publishing

http://www.ip.net

A zany, collection of online shopping services. You have to wend your way through a fair bit of claptrap to get anywhere interesting – they're going to learn not to do this soon. This is Herbal Care meets Macintosh software Meets Beavis and Butthead. All the outlets have forms, but so far this is more a shop window than a shop, but if you like this sort of thing...

Internet Shopping Network

http://www.internet.com

Don't be fooled by the name, it's not much of a network: more of a catalogue of computer-related products from 600 suppliers. European browsers can only wonder at some of the low prices. At present, ISN won't deliver outside the US but it was recently taken over by the TV Home Shopping Channel, so watch out for synergies developing.

Linux IT Catalogue

http://www.fintronic.com/linux/catalog.html

An example of how to use the Internet to sell from a catalogue – in this case, low-cost Unix workstations. As well as a detailed list of what products and options are available, there's advice about how to choose the system that meets your needs and references to Linux's trade press coverage. The latest catalogue is also available via finger at linux-sales@fintronic.com

Multimedia Ink Designs

http://mmink.cts.com/mmink/mm.html

One answer to the question of commercial use of the Internet, Multimedia Ink Designs' home page offers access to a series of small businesses that offer goods from 'socially responsible' coffee to earrings. The virtual equivalent of the trendy Lakeshore Arcade, this page is wholly American: none of the sellers seem to offer international shipping or prices. Lisa includes pictures of her earrings, others provide order forms, some just text. Although a small site, this may give you an idea for how the Internet can provide commercial uses.

The NetMarket Company

http://netmarket.com

If some of the shopping centres you go to on the Internet are brash and pushy like the Argos catalogue, NetMarket has the 'shy-sell' feel of a charity Christmas gifts brochure; it prides itself on high quality at reasonable prices. There are currently five shops: Noteworthy Music (CDs), 800-The Rose (florist), Les Vignerons (wine), The Space Between (books on UFOs, lost worlds, secret societies etc) and Sovereign Records. You can buy on-line and the CDs are certainly cheap, but when you add P&P, you sadly realise you'll get a better bargain at HMV. NetMarket also deserves a visit because it's the first company on the Internet to support automatic public key encryption for credit card transactions.

Online Career Centre

Gopher: gopher msen.com

Users job hunting in the US and Canada can go to the Online Career Centre. The opening menu invites you to browse profiles of companies that are actively recruiting staff. There are sections on how to construct a CV, job vacancies classified by state or city, many complete with contact names, a full job description and an email address. Once you have written your CV you can post it to thousands of potential employers or a carefully targeted few. Each CV posting lasts for 90 days, after which it is removed. If you are still searching, simply re-submit it. Other menus give access to career assistance, employment events and many more. A great example of how an Internet service should be run.

SCIENCE

Jet Propulsion Lab (NASA)

http://www.jpl.nasa.gov/

Budding astronauts can get access to NASA press releases, flight information and even pictures from this Web server maintained by NASA itself. News stories can be obtained as they break by finger to nasanews@space.mit.edu

South Pole

http://www.deakin.edu.au/edu/msee/genii/nspt/nspthomepage.html

Bi-weekly newsletter of the Amundsen-Scott South Pole Station in the Antarctic.

The Solstice Home Page

http://solstice.crest.org

This the site for renewable energy and sustainable IT. It lists Internet resources for those interested in alternative energy, as well as discussions of such issues as non-motorised vehicles in Asia, and a tour of photo voltaic installations in Switzerland. Not the most dynamically designed site, but full of information. It can also be accessed by Gopher at gopher.crest.org and anonymous FTP at solstice.crest.org

SPORT

Liverpool FC

http://www.rpi.edu/~sathes/lfc.html

Good example of one of the proliferating UK football club Web services – all of which seem to the work out of the UK's top educational establishments. The Liverpool pages include fixture lists, up-to-date match reports, honours histories, team and manager photographs. Plus a collection of notable quotes from, as the Web service puts it, Scousers and non-Scousers alike.

Sport Virtual Library

http://www.atm.ch.cam.ac.uk/sports/webs/html

Courtesy of the Centre for Atmospheric Science at Cambridge University, this is the most extensive set of links we've found to sports information on the Internet. If you can play it, it's on here (where do they find the time to do any atmospheric science ?). Take football, for example. Not only are all the UK club servers listed, but there are extensive links to football pages all over Europe and the United States. Other sports covered include American football, baseball, rugby (union and league) cricket, tennis, cycling, rowing, orienteering, windsurfing, skiing, rock climbing, scuba diving, car rallying, white water rafting, and more. There is also a set of local users' alternative home pages and these usually yield some interesting Internet nooks and crannies.

SUPPORT

Samaritans

Email:jo@samaritans.org

Use the Internet to email the Samaritans in the UK, also on samaritans@cix.compulink.co.uk or telephone 0242 515777. The service follows a successful email test service run in the summer of 1994. For complete discretion, try the anonymous email server at samaritans@anon.penet.fi, although you may have to wait a while for a reply.

TOOLS & INFO

About the Internet

http://www.internic.net/infoguide/gopher/about-internet.html

A good starting page if you wish to delve into the history of the Internet or just generally learn how it's set up and who runs it. This is for the 'up and running' traveller and is not a 'how to' guide (there are plenty of those already). There are pointers to Internet organisations with other links to their sites. For the technically voracious, there are links through to the InterNIC Directory and Database services which contain Internet documentation. It has a link to Internet culture and 'netiquette'; connections to information on 'Internet personalities'; and Net archives, including the Internet monthly reports.

Amiga Mosaic

http://www.commerce.digital.com/palo-alto

The Commodore Amiga is one of the many machines that has now had a client ported to them. The Amiga Mosaic home page provides access to the FTP archive where the program is located, allowing users to quickly and simply download the latest version. Also provided is a complete overview of the program, including embedded screen-shots – a kind a of 'view before you download'. Interested users may wish to join the Amiga Mosaic mailing list by sending mail to witbrock@cmu.edu

Archie

http://web.doc.ic.ac.uk/archieplexform.html/

Archie is a widely-used system that allows users to search anonymous FTP sites for specific files. Imperial College has built an Archie search utility into its FTP site. A simple search can be performed by any WWW client, but for full searches, users require a forms-compatible client software such as Mosaic version 2 or MacWeb.

Cello

http://www.law.cornell.edu/cello/cellotop.html

This site is the home page for the Cello Internet Web browser for Windows users. Cello is primarily a Web client, but also offers built-in support for FTP, NNTP news, phone servers and Gopher. Optional utilities can be used to extend this to WAIS, Hytelnet, Telnet and Telnet 3270.

CERN

http://www.cern.ch

Cern, the European Laboratory for Particle Physics in Geneva, is the home of, and the definitive source of, information about the World Wide Web, which was originally developed by Tim Berners-Lee as a tool to aid collaboration in physics research. The Cern Web server there contains a wealth of vital Web information, including the extensive WWW Virtual Library (see the Libraries section).

CU-seeme

FTP: gated.cornell.edu

CU-seeme has caused quite a stir around the Internet because it offers public domain video conferencing. Client applications for both Macintosh and Windows exist for viewing the video. To broadcast video you need a Video Spigot (Macintosh) or Windows multimedia-compliant video card (PC).

EInet

http://galaxy.einet.net/

EInet's Web site not only houses the latest versions of its Macintosh and Windows Web clients (MacWeb/WinWeb) but also a whole host of information on topics as diverse as architecture and current affairs.

For Your Information

FTP: ftp.nic.nnsc.nsf.net/fyi/fyi_04.txt

I've just got on the Internet – what can I do? What's a Gopher? What's the World Wide Web? How do I find someone's email address? This file sets out to answer the questions commonly asked by new Internet users and it does so in a reasonably clear and accessible way. It also deals at some length with the evolution of the Internet and explains how technical and policy issues are decided but, again, this information is fairly easy to digest.

Free Computer Reference

http://ici.proper.com

Internet Computer Index is a free reference service split into three sections

for PC, Unix and Macintosh. We tried the PC Index, whose opening menu offered a dozen interesting places to go. The FAQ (frequently asked questions) section had 40 or 50 items alone on common PC problems.

Free Fax Service

`http://linux1.balliol.ox.ac.uk/fax/faxsend.html`

As with many Internet addresses this a fledgling service which is growing rapidly and seems to have huge potential. Balliol College, Oxford, is the home page for England for what's billed as a free Internet fax server. When you complete the online fax form, the recipient's name and address is converted to an email address and then routed to the nearest destination computer. This, in turn, restores the message back into fax format and transmits it through the local telephone network to the addressee's fax machine. That's the theory, but we're still waiting for our test faxes to turn up...

Global Network Navigator

`http://www.gnn.com`

One of the Internet's most valuable Web servers, and so an essential addition to your hotlist. From deep in the heart of California wine country, GNN has carefully organised links to a host of useful places around the Internet. Included in the service is access to the inimitable Whole Internet Catalogue, a large classified directory of what's on the Web. Of particular note is the regularly updated what's new section. Other GNN features include Digital Drive In, a section about movies on the Internet, and NetNews, a weekly roundup of Internet news.

Hitchhikers Guide to the Net

`FTP: nic.merit.edu/documents/rfc/rfc1118.txt`

This sounds as though it's going to be quite hip but in fact it's a fairly worthy 24-page treatise on the origins and operation of the Internet. For the uninitiated it goes some way to explaining what it's all about. But it's all rather dry and technical and lost us quite quickly. There are a few hints on how to be a good Internet neighbour but really it's one for the Net historians only.

Map Browser

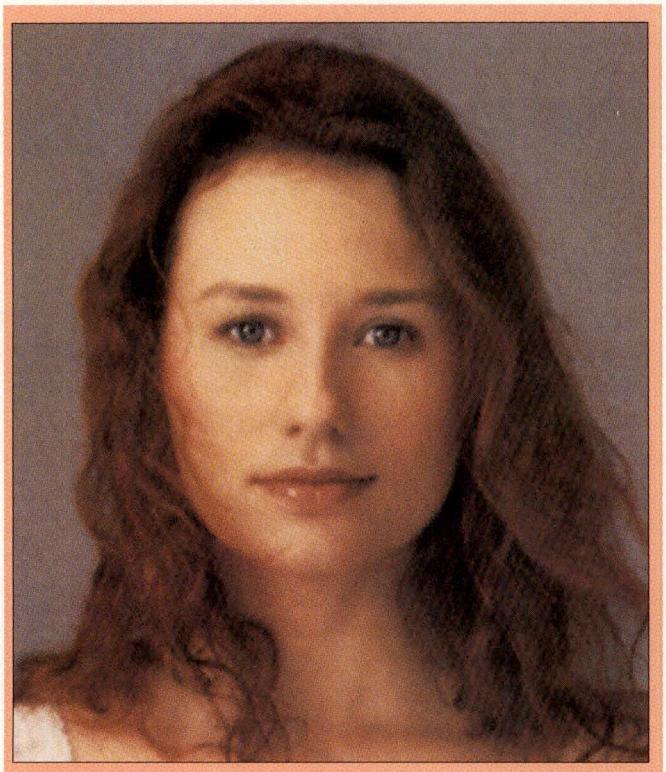
`http://pubweb.parc.xerox.com:80/`

Xerox PARC (Palo Alto Research Center) are the people who brought the world GUIs (Graphical User Interfaces) and ethernet. Their public Web site provides, among other things, a graphical world-wide map browser. This allows a user to find a specific location on the globe, and obtain a map of it showing rivers, borders, and other information.

NCSA

`http://www.ncsa.uiuc.edu`

Home of Mosaic, the most widely used Windows and Macintosh-based Web browser. At this site you'll find the latest versions of the full range of Mosaic-related tools, including the GIF, JPEG viewers, video and sound players. The documentation on offer at NCSA ranges from the simple to understand to the highly-detailed. One of the Web world's two most important sites.



Music Virtual Library

`http://www.oulu.fi/music.html`

This one modestly protests that it is rudimentary, but there's a lot in it, including a comprehensive catalogue to all kinds of music information on the Internet, a MIDI home page, an online version of the All Music Guide book, and home pages for a host of artists from Tori Amos, through Kylie Minogue, to Frank Zappa.

Spry

`http://www.spry.com`

Home of the first commercial version of Mosaic and Internet in a Box. From these pages you can download demo versions of Spry's products.

The Internet Society

`http://www.intsoc.com`

Home page for the organisation that coordinates the development of standards and codes of conduct for the use of the Internet. Its members are both individual and corporate. There are two parts to the Internet Society service: detailed information about its own activities; and an encyclopedic collection of information of how the Internet is developing around the world. In one way, though, the Internet Society pages are setting a poor example: when we were last there, they hadn't been updated for almost two months.

The InterNIC

`http://www.internic.net`

A service which provides information about accessing and using the Internet, and also about connecting your own network components to it. This service is provided by heavyweights AT&T, General Atomics and Network Solutions, and in fact it's a very useful starting-out point for beginners: the Infoguide takes you through all the steps involved in getting connected.

Today's Cool Site

`http://www.infi.net/cool.html`

Another day, another site, according to one Glenn Davis. A nice touch – not always on offer – is the ability to switch to a text-only version, thus avoiding sluggish communications. Don't worry if you missed the cool sites of yesteryear: they're all here, too.

Veronica

`Gopher: gopher.scs.unr.edu`

Veronica (Very Easy Rodent-Oriented Netwide Index to Computerised Archives) is a service that performs key word searches of Gopher menus. The results of such searches are presented back to you as a list of Gopher menu items that you can then select from.

Voice Synthesiser

`http://utis179.cs.utwente.nl:8001/say`

If you've not used a voice synthesiser before this is your chance to try one out. On the first page, type in a word or phrase. Then the system presents you with a player designed in tape-deck style. Just press play and the phrase will be played back through your PC speaker. Full marks for ingenuity, however, because this system has been cobbled together with bits of PD software.

WWW Worm

`http//www.cs.colorado.edu/home/mcbryan/WWW.html`

Based at the University of Colorado, this server offers several good ways to search the Web – including what's billed as the Mother of all Bulletin Boards. There is a huge selection of BBSs listed, including the bizarre entry for the Adonis Kebab House, Cardiff! Certainly one to watch.

Zen & the Art of Internet

`FTP: ftp.csn.net/pub/net/zen`

A free ASCII or Postscript version of this book is available from this FTP site. Excellent reading if you wish to find out more about the Internet, including such topics as TCP/IP, domains and its history.

UNIVERSITIES

Bradford University

`http://www.brad.ac.uk`

Nicely-produced Web service that includes city information – complete with pictures as well as links to its main departments. There's also access to personal home pages, which are always a good source of links to unexpected places.

Cambridge University

`http://www.cam.ac.uk`

Cambridge is the UK's biggest centre of Internet use, both in and around the university and this is the home page for the main university server. Through a Gopher menu, there's probably the UK's most comprehensive collection of local information: from railway timetables and bus services to lists of chemists, dentists, music venues, and much, much more. Alas, no personal home pages yet.

Liberty

`Telnet: liberty.uc.wlu.edu`

The Liberty server at Washington & Lee University in Virginia provides a Telnet Gopher service. For those researching a specific subject, this is an excellent starting point.

MIT

`http://www.mit.edu`

One of the most worthwhile university Web servers to visit, it includes a large number of student and staff home pages with links to the complete gamut of Internet activity. One quick way to see into the outer reaches of the Internet world is through the MIT students' home pages on the Student Information BoardWorld (SIB).

Sheffield University

`http://www2.shef.ac.uk`

This demo server is running, the home page announces proudly, on a Macintosh SE/30. There are links to the university's main departments plus some local information. Modest by, say, Bradford and Cambridge standards, but the Sheffield server does contain what's probably the world's most honest Web page. When we looked, and clicked on What's On at SU Union, the page came up with the message, 'The information provider for this section is on holiday.'

Sigweb UK & I

`http://www.qub.ac.uk/sigweb/index.html`

This service has been set up to foster relationships between researchers and developers from colleges in the UK and Ireland. It is excellent for locating UK and Irish servers, with active maps.

Internet Events

Want to find out more about the Internet? Here we preview all the Internet-centric happenings over the coming weeks

practical seminars

Internet for Your Business/ Running a Successful TCP/IP Network

November, December and January

INTERNET magazine and Integralis have joined forces to produce two important half-day seminars: *Running a Successful TCP/IP Network* and *Internet for Your Business*. Together, they are designed to equip corporate network managers with most of what they need to know about using Internet technologies for better intercommunications and for doing business. The events are running in Reading (3 November), London (17 November), Birmingham (19 January) and Manchester (26 January).

Running a Successful TCP/IP Network is a morning session presented by Kevin Washburn, author of several TCP/IP books, and resident expert at Integralis. TCP/IP provides greater connectivity than any other protocol and is the basis of Internet communications. The seminar is practical in nature, considering not only the terminology and technology but also its application. The programme deals with common problems that arise and how operation of such a network should be approached.

Topics to be covered include: architecture of TCP/IP, management issues, IP addressing, protocols (TCP, UDP, IP, ICMP, ARP), application layer services, management protocols, and network configuration.

In the afternoons, *Internet for Your Business* features **INTERNET** editor Neil Ellul speaking on the challenge of the Internet: why it's set to become an important business tool.

The seminar will provide delegates with a working knowledge of all of the major Internet buzz-words, including: MIME, HTTP, HTML, Telnet, FTP, Usenet, Archie, Veronica, Gopher, WAIS, Mosaic, WWW, Finger, Whois, security, firewalls, application gateways, router filtering, acceptable use, netiquette, copyright and legal issues and the pornography problem.

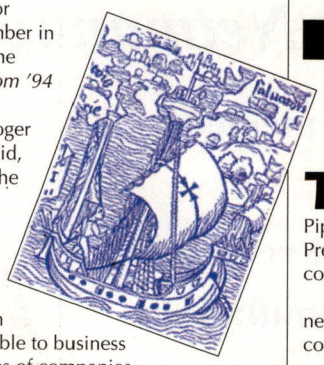
Each session costs £60 or £95 for the whole day's programme of two events. Prices include lunch and a free copy of Kevin Washburn's book, *TCP/IP Running a Successful Network*. To make your reservation, contact Karen Liddell at k_liddell@integralis.co.uk, telephone 0734 306060, fax 0734 302143.

major two-day conference

InterCom '94

24 – 25 November

INTERNET magazine is to sponsor a major two-day conference on 24 and 25 November in London, called *InterCom '94*. With the theme 'There's a new trade wind blowing', *InterCom '94* will look at the potential for the Internet to change the way the world does business. Roger Green, publishing director of **INTERNET** said, "Most business people can't have escaped the media attention being given to the Internet over the last few months. However, there is a big difference between reading about the Internet and taking it from toy to tool."



Peter Huckle, the *InterCom '94* conference chairman added, "Our goal with *InterCom '94* is to make the Internet accessible to business people by sharing the real-world experiences of companies already using the Internet themselves."

With a focus on practical, business-related information, the issues addressed at *InterCom '94* will include sessions presented by the industry's leading speakers on how to get started, user interfaces, security, gaining a marketing presence over the Internet, protecting copyright and – crucially – getting paid for services.

High-speed ISDN lines will be installed to connect the conference hotel to the Net. There will be product and service demonstrations from BT, CIX, Demon, IBM, Individual, Integralis, **INTERNET**, Leaf Distribution, Lotus, and Pipex. There will be time for delegates to familiarise themselves thoroughly with the Internet and to discuss their specific business situations. *InterCom '94*, sponsored by **INTERNET** is taking place at the London Metropole Hotel. The delegate rate for the two days is £495.

For booking details contact Peter Huckle at the Conference Group at phuckle@cix.compulink.co.uk, telephone 0962 860670, fax 0962 855309.

business seminar

Integrating Your Enterprise

21 November, London

INTERNET magazine has negotiated a special 10% fee reduction for the one-day seminar on 21 November – *Internet in Action: Integrating Your Enterprise*. The seminar leader is Mark Gibbs, an acknowledged Internet expert and author. He is in London to give his acclaimed US and European tutorial, updated with new on-line demonstration and case studies, as detailed in the brochure you may have received with this issue of **INTERNET**. In case you didn't see the brochure, let us tell you that the intensive event covers such ground as getting connected, selecting tools, key business issues, advertising on the Internet, publishing, and success stories.

At £355 the complete package includes Mark Gibbs' book *Navigating the Internet*, Infomagic's Internet Tools CD-ROM, a comprehensive workbook, lunch and refreshments.

For booking details contact Brian Payne at Technology Appraisals at techapp@cix.compulink.co.uk, telephone 0181 893 3986, fax 0181 744 1149. To get your 10 % discount, be sure to mention **INTERNET**.

touring seminar

Unipalm National Road Show

1 November – 15 December

Unipalm, the parent company of top UK Internet access provider Pipex, will be running a series of seminars, almost certainly in a town near you, throughout November and December. "The purpose of the road show is to inform IT managers, who may be nervous about setting off down the much-hyped, and largely notional 'infobahn', of the real potential business benefits of the Internet," explained David Barrett of Unipalm. The seminars are being staged in cooperation with FTP Software, NCD, and Firefox – the company that's just launched a major new release of its Novix Internet access add-on for Novell networks.

Each seminar will feature a core 'orientation' session; corporate case studies and presentations about the latest Firefox and NCD products. The Unipalm tour runs from 1 November to 15 December. The cities being visited are: Edinburgh (1 November), Newcastle (3), Leeds (15), Birmingham (17), London (29,30), Swindon (1 December) Exeter (6), Cardiff (8), Dublin (13) and Belfast (15). The event costs £45. For details, contact Unipalm at pippa@unipalm.co.uk, telephone 0500 567000.

exhibition

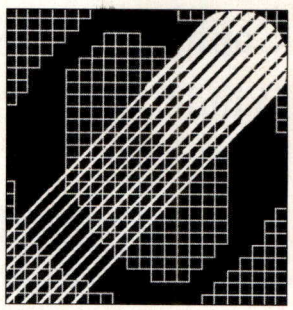
Online Information '94

6 – 8 December

This year's Online Information exhibition at Olympia 2 in London will feature an Internet Village. Exhibitors will include Integralis, Eunet, Pipex, Demon, BBC Networking Club, PC User Group, and Electronic Press. The 18-year-old event will also include a strong Internet flavour in its conference sessions.

A special tutorial on *Internet Use and Abuse* will cover the policing and netiquette of the Internet, and cover issues like security, encryption, commercialisation, and intelligent agent navigational aids.

Payment Services for Global Online Systems will bring together a panel representing some of the world's largest credit card processors, electronic funds transfer companies, and encryption device manufacturers. They will discuss how credit card payments for services delivered on the Internet can help grow the use of online services.



Other sessions of the mainly academic conference will look at the use of the Internet for school libraries; hear accounts of the development of Internet use in Eastern Europe; and consider how the Internet can be linked up to the development of interactive television services.

For more information, contact Learned Information at registrations@learned.co.uk, telephone 0865 730275, fax 0865736354.

Date	Event	Venue	Contact
1 Nov- 15 Dec	**Unipalm Seminar Series**	Edinburgh Newcastle Leeds Birmingham London Swindon Exeter Cardiff Dublin Belfast	Unipalm 0500 567000 pippa@unipalm.co.uk
1-3 Nov	**Windows Expo**	Olympia 2 London	Simon Rogers IT Events 0256 381456
3 Nov	**Internet For Your Business/ TCP/IP: Running a Successful Network**	Reading	Karen Liddell Integralis 0734 306060 k_liddell@integralis.co.uk
9-11 Nov	**Getting the Most Out of the Internet**	Regents Park Hilton Hotel Lodge Road, London	OmniCom PPI 0438 742424
16-17 Nov	**The Digital Information Revolution**	Westminster Central Hall London	Nigel Walker Status Meetings 0730 266544
17 Nov	**Internet For Your Business/ TCP/IP: Running a Successful Network**	London	Karen Liddell Integralis 0734 306060 k_liddell@integralis.co.uk

Date	Event	Venue	Contact
22-25 Nov	**The Complete SGML**	Venue detail to be confirmed	Brian Payne Technology Appraisals 0181 893 3986 techapp@cix.compulink.co.uk
22-25 Nov	**Document Management, Databases & Delivery**	Venue detail to be confirmed	Brian Payne Technology Appraisals 0181 893 3986 techapp@cix.compulink.co.uk
24-25 Nov	**InterCom '95**	Metropole Hotel Edgware Road London	The Conference Group 0962 860670 phuckle@cix.compulink.co.uk
26-27 Nov	**Fuse '94**	Royal College of Art Kensington London	Steve Miller FontWorks 0171 490 5390
29 Nov- 2 Dec	**Document Computing**	Venue detail to be confirmed	Brian Payne Technology Appraisals 0181 893 3986 techapp@cix.compulink.co.uk
6-8 Dec	**Online Information '94**	Olympia 2 London	Learned Information 0865 730275 registrations@learned.co.uk
19 Jan	**Internet For Your Business TCP/IP: Running a Successful Network**	Birmingham	Karen Liddell Integralis 0734 306060 k_liddell@integralis.co.uk

TCP/IP Applications for Windows

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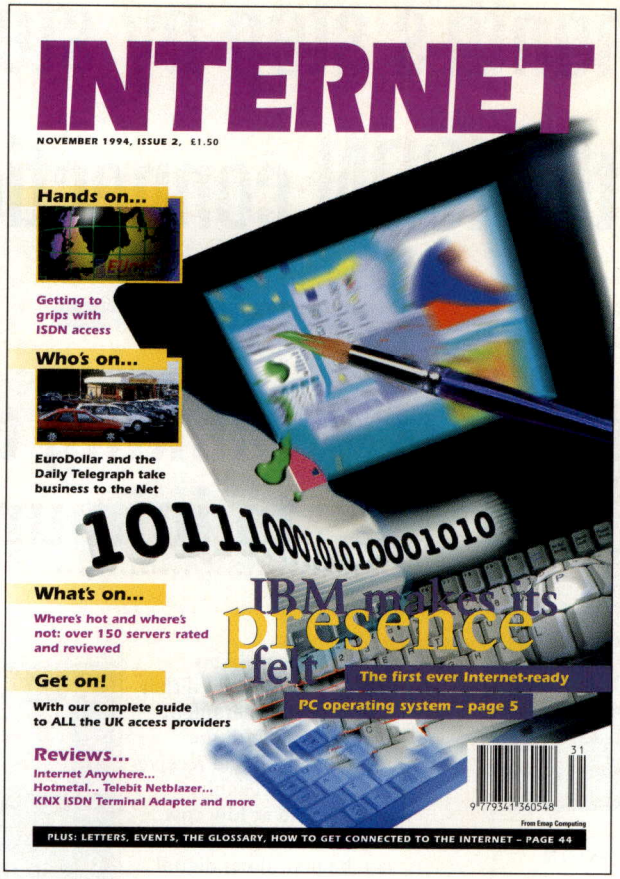
INTERNET
NOVEMBER 1994, ISSUE 2, £1.50
Hands on...
Getting to grips with ISDN access
Who's on...
EuroDollar and the Daily Telegraph take business to the Net
What's on...
Where's hot and where's not: over 150 servers rated and reviewed
Get on!
With our complete guide to ALL the UK access providers
Reviews...
Internet Anywhere...
Hotmetal... Telebit Netblazer...
KNX ISDN Terminal Adapter and more
10111000101010001010
IBM makes its presence felt
The first ever Internet-ready PC operating system – page 5
PLUS: LETTERS, EVENTS, THE GLOSSARY, HOW TO GET CONNECTED TO THE INTERNET – PAGE 44

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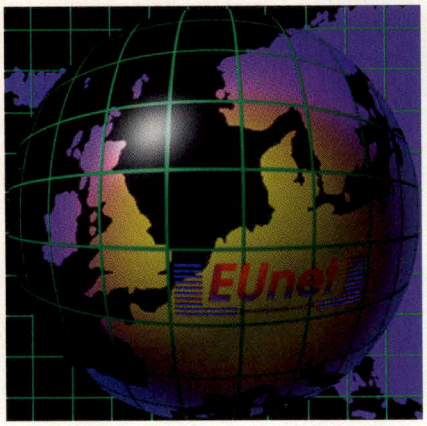
This month's step by step guide: the ISDN connection



So you've made the decision to investigate this phenomenon called the Internet further. After months of reading about it in a variety of media, you've finally decided that it's time to check it out yourself, to see if there is a potential advantage to your company in connecting. But where do you start? How do you get connected? What about all the jargon? Don't worry, it's actually relatively easy. The technical language is straightforward once you've grasped the basic concepts and you'll pick up most of jargon along the way by default. This month's Getting Started deals with ISDN access, courtesy of Eunet

1 Making the decision to join up

You've probably already realised that the Internet might provide you with the means to send and receive information reliably, quickly and at low cost. And that this information can be text, data, digital graphics, photographs, conferencing, multimedia and so on.

You've also more than likely discovered that, although use of the Internet is free, getting a connection to it isn't – to get connected you have to buy a suitable service from an Internet access provider. So how much does it cost? Well, that depends on the type of service that is required.

Eunet's Web home page (`http://www.britain.eu.net`) contains its newsletter in the form of JPEG graphics files

EUnet, Europe's largest commercial Internet access provider, has a variety of start-up services which enable the smaller company, or a department within a larger organisation, to try out the Internet and the resources it has available.

EUnet's experience is that newcomers to communications between computers tend to start with some form of email (electronic mail) connection to the Internet, and then move up to a full IP (Internet protocol) connection later on, perhaps within three or four months or sometimes a year.

This allows sites to successfully link their in-house email systems, whether cc:Mail, MS:Mail, Unix, MHS or whatever, and provide email to the desk for all staff. EUnet's email-only service, EmailLink, costs £380 per annum, plus usage charges of 7.5p per Kbyte of data sent overseas. Sending mail within the UK is free, as is receiving messages from anywhere.

Of course, many sites need to provide full IP service to their staff straightaway, so they will need access to the full set of Internet tools such as file transfer (FTP), remote login (Telnet), Gopher and World Wide Web.

Access	Fixed comms cost	Fast connect	Fast file transfer	Internet service fee	Security impact
Modem	✗	✗	✗	Low	Small
ISDN	✗	✓	✓	Middle	Small
Leased line	✓	✓	✓	High	High
X25	✗	✓	✗	High	High

There is a choice of four connection media for linking up to the Net, all with slightly different attributes

2 Getting a connection

Once you've decided that your organisation needs the full Internet access, whether to allow searching of the data available on the network or to put up a 'shop window' detailing your products or services, there is a choice of connection media: modem access, ISDN access, leased line access or X.25 access. The pros and cons of these are summarised in the table (bottom left).

The two dial-up options are modem and ISDN. These are connection-on-demand services, so your site is not accessible around the clock.

Modem access provides the cheapest option but has the slowest handshake time, and modem speeds may not be adequate to allow more than one lan user to access the WWW at any one time.

ISDN, on the other hand, is fast becoming the corporate users' starting point. It provides fast connections, no slow modem handshake, and full 64K data transfers – four times the speed of the fastest modems.

The leased line and X.25 services are both online connections – your site is linked up to the network all the time. This opens up the question of security, because third parties can attempt to access your site or to login.

Companies planning online access certainly need to consider their security requirements; both who is allowed to access the site from outside, and who on the inside is allowed to do what on the external Internet.

This is the time to talk closely with your Internet provider, who can normally help you put together security arrangements and build a secure gateway to the Internet.

Since the communications costs are fixed, leased line access methods are the most popular with those needing heavy access. Leased line prices are fixed irrespective of usage, unlike the dial-in services where the phone bill rises as the hours online increase.

Access over X.25 is only effective for a site with existing X.25 access at a reasonable speed – 48K or above – but if you already have this you may find that it is a low-cost way to begin.

ISDN is becoming the standard for corporate access, so if you choose this option, first off you will need an ISDN line – BT's service, known as Basic Rate ISDN2, costs £400 to install. The actual installation is fairly straightforward, although the waiting period can be anything from a week to a month, providing you're in an area with a digital exchange. You order an ISDN line in the same way you order a standard phone line – directly from BT.

At present, Mercury does not install its own lines, although users can benefit from reduced rate international ISDN calls by subscribing to Mercury's ISDN132 scheme.

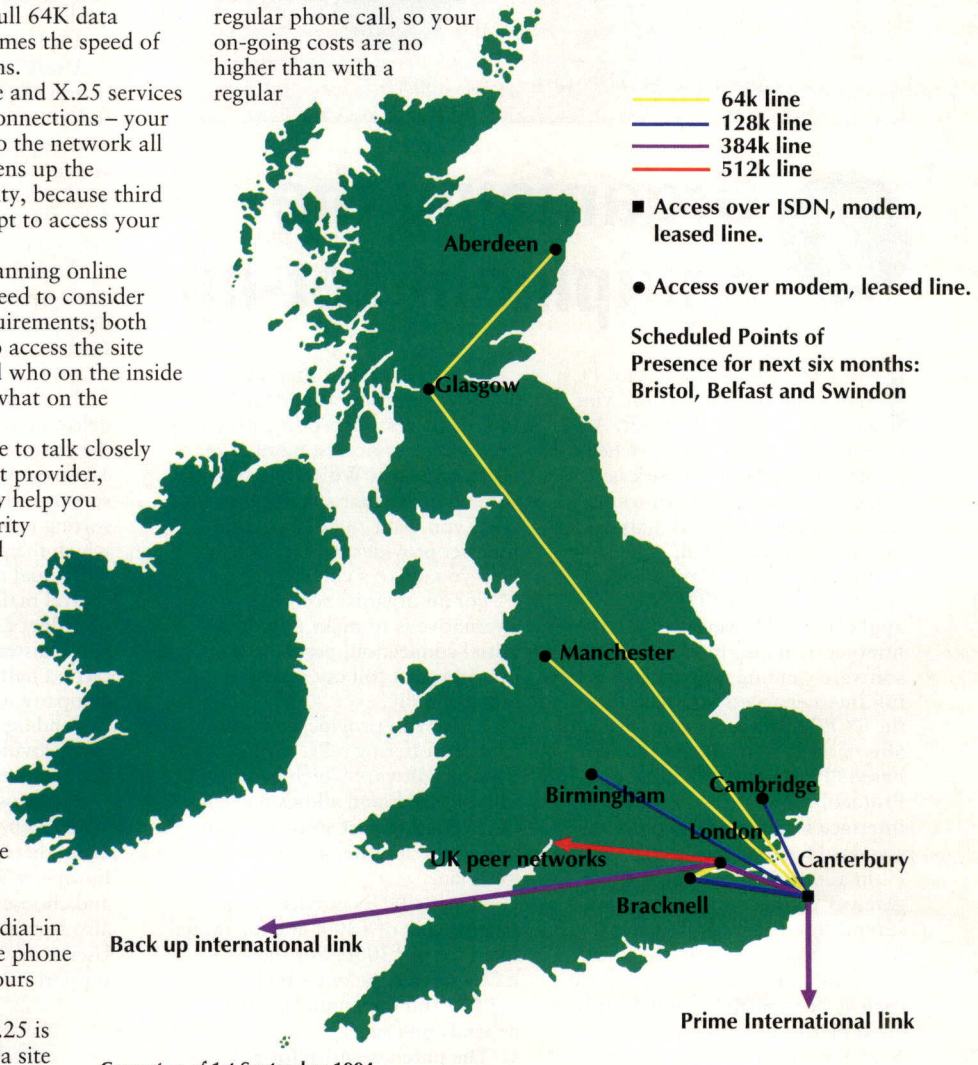
The actual charges for ISDN calls are the same as for a regular phone call, so your on-going costs are no higher than with a regular modem. In fact, they're likely to be slightly lower because less time is needed to transfer the same quantity of data, so online sessions tend to be shorter.

Once you have sorted out your communications requirement, next comes the decision of what hardware to buy.

You will need an ISDN TA (Terminal Adapter), which is the ISDN equivalent of a modem and converts your serial data stream to the synchronous data stream needed for ISDN (for more information on this see Hands On: KNX ISDN TA, page 32).

EUnet currently has eight POPs (points of presence) in the UK and the map shows where they are located and the type of line they use, but this is soon to be change with the addition of Bristol, Belfast and Swindon.

However, if you want ISDN connection, you are presently limited to dialling into the Canterbury POP at EUnet's headquarters



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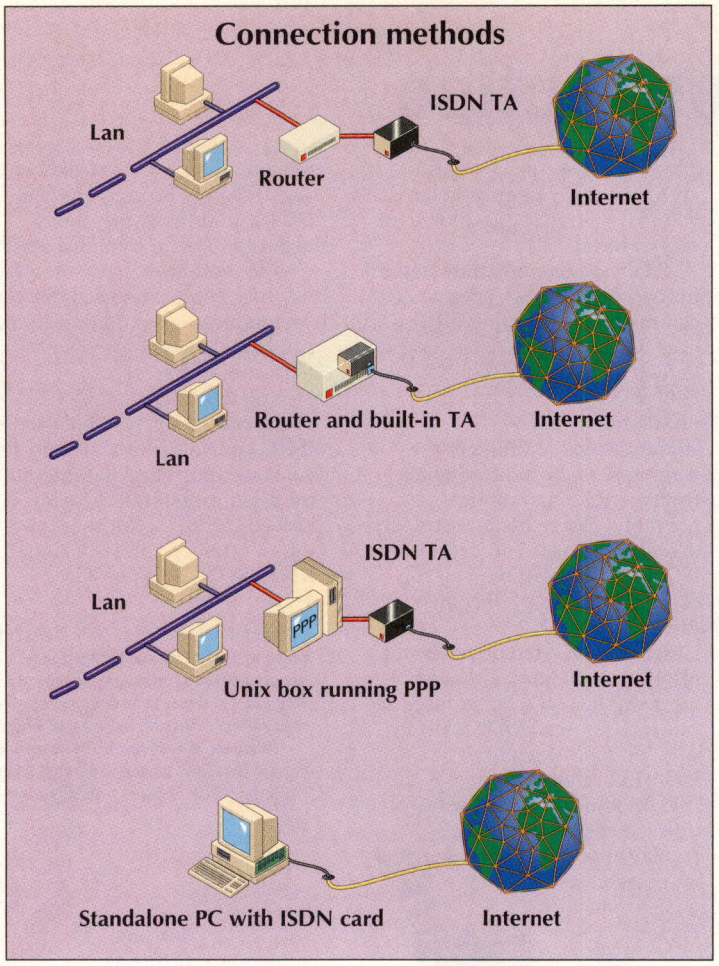

In terms of equipment, there are various options, but the network topology you choose will depend on what suits your company's set-up best

3 Organising the equipment set-up

If you are connecting several PCs to the Internet connection, you will also need an IP router. A router is a box that knows when a packet on the local network is being addressed locally or to the wide area network, and dials up the Internet feed as needed.

You need both of these pieces of equipment for most ISDN applications. However, to use the Internet, you also need suitable software running on your PCs. For full Internet access you will need the TCP/IP protocol stack, or alternatively you can use the serial-based PPP (Point-to-Point Protocol). SLIP (Serial Line Interface Protocol) is an older standard for the same thing.

In addition to making the gateway connection, you will want several Internet tools (Gopher, Mosaic etc) running on the users' desktops. A PC Windows package such as Netmanage Chameleon is a good platform for this. On the Mac, try Pathway Access from Wollongong.

There are many different hardware configurations for ISDN Internet access, depending primarily on the type of access, number of users, and cost. Which one would suit any particular site depends on what you want to do, but your Internet provider will be able to help you make a choice.

For an organisation, an alternative is to make a limited initial connection, perhaps to one PC, and then roll out access incrementally.

EUnet can provide a very easy route by offering a PC card ISDN TA and software which handles the Internet feed, and allows the single PC to run Internet software and talk to the Internet as if it were the local lan.

EUnet's ISDN Service has a one-off cost of £300, and an annual fixed fee of £3000. For the PTT ISDN service the one-off charge is £400 and the annual charge depends on usage.

The purchase price for EUnet's ISIS hardware, which consists of a PC card and an ISDN/Internet adapter, is £950, and the PC desktop software (Chameleon) is £299.

This configuration can be expanded to the full network by dedicating the PC to run the gateway software for the whole lan and installing the appropriate lan card/software combination for £2,500.

4 Starting to surf

Once you've got your system set up, you need to get yourself a domain name; a reference address which describes your company's location and how you can be found. You choose your own when you sign up with an Internet access provider, but it has to be unique and should reflect your business name. For example a company called Wacky Widgets could use `wackyw.co.uk` or `wacky-widgets.co.uk`, but `ww.co.uk` would be too vague.

Users' personal names are also largely a matter of preference, but it's a good idea to have some kind of common sense rule so that people within the company know who's who, and obviously there should be no duplications. Examples of the kind of format usually used are `fred.smith`, `freds`, or `f_smith`

An individual's complete address is made up by combining the personal and domain names, for instance `freds@wackyw.co.uk`, and this allows users to send and receive email.

Email for the whole of the domain is delivered to the site, in the same way that the postman puts all the mail for number 15 through the letterbox, and you have to sort out who each letter is for. Message sorting is done by your email software, which then forwards material to individual mail accounts on PCs or to a central mail server machine.

EUnet can usually install equipment and register a domain name (ie assign the second half of the email address) for your company within three to four weeks. Depending on customer needs, EUnet can also provide training, from £250 per day per member of staff.

For Mosaic users, EUnet has a World Wide Web page at `www.britain.eu.net`. From there, you can look at all EUnet's European WWWs – start at `www.eu.net` and choose a country from there. EUnet also runs an FTP server, it provides full Usenet news feeds and runs a telephone support helpdesk. `<ends>`

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ISDN connectivity

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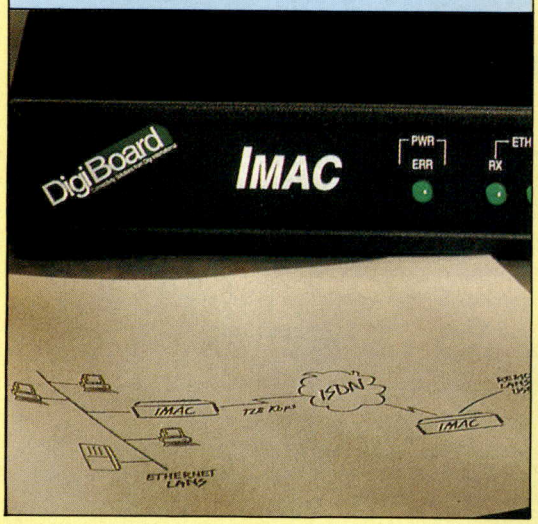
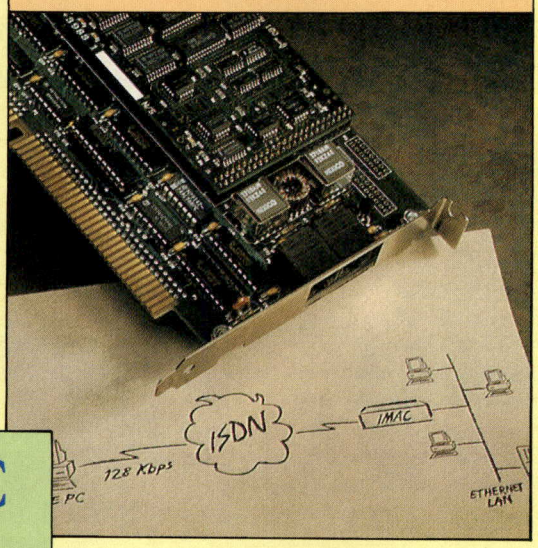
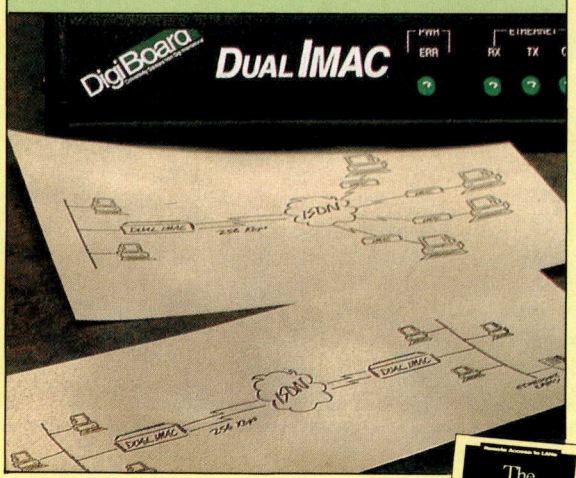


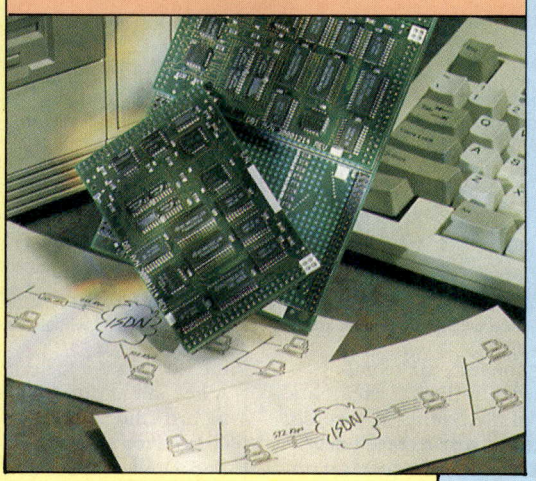
DigiBoard PC IMAC
Personal Remote LAN Connection



DigiBoard Dual IMAC
High-Capacity
Remote LAN Connection/WAN Hub



DigiBoard PC IMAC/4
Multiport ISDN Communications Card



ADVANCED FEATURES

B Channel Support

All DigiBoard IMAC products support one or two ISDN B channels. The B channels can be used separately to support two simultaneous 64 Kbps connections or B channels can be aggregated to provide a single 128Kbps connection. IMAC products are available with support for up to 8 B channels.

Protocol Analyzer

A built-in D channel protocol analyser makes it easy to troubleshoot remote LANs and ISDN connections.

Link Optimizing Software

DigiBoard's software reduces line charges by up to 60% by eliminating unneccary connections.

SNMP Management

Through SNMP management on stand alone IMACs, the administrator can access and administer remote networks and troubleshoot ISDN connections all from the central site.

On-demand-dialing

With this feature remote connections are completely transparent to the computer user. The IMAC monitors LAN traffic.

Multipoint Connections

Connection to multiple sites is achieved by simply adding additional numbers to the IMAC address table.

Point-to-Point Protocol

Connecting IMAC products with other ISDN bridges, routers or terminal adapters is easy through PPP.

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IT'LL TELL YOU ALL ABOUT IT!

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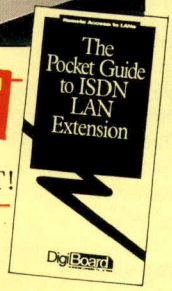

LOOK OUT FOR OUR ISDN WORKSHOPS ! THRO' SEPTEMBER '94

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PE.A 6/94

Customer service and cost-savings persuade EuroDollar to take a ride

Philip Hunter finds out why the car rental giant and its clients are all set to benefit from the company's drive to become an information on-ramp

Although services are currently centred in the UK, EuroDollar customers will ultimately be able to rent a car via the Internet anywhere in Europe or the United States

As a recent convert, car rental corporation EuroDollar exemplifies the spirit of the boom – it sees the Internet as a natural way to reach new customers and communicate better with existing ones.

Although there are still some technical and security issues to overcome, the company is confident that the Internet will be widely used by both corporate and private customers to obtain information about different car rental services, to select particular models and options, and to make reservations.

The company's open systems group manager, Paul Deacon, emphatically denies that the decision taken this year to join the Internet was a case of following the flock into a fashionable area of IT. A key initial objective is to save money by providing a cheaper way than leased circuits for corporate customers to access EuroDollar's mailhub. This is a gateway to information about the company's range of customer services as well as a 'message switch'.

Mailhub to handle message switching

"It's our name for our corporate messaging service, whereby someone can send us messages machine-to-machine, directed at any of our corporate services," explained Deacon. "The idea is for this to be a visible face of EuroDollar, a message switch to allow our major corporate customers, such as BT or the RAC, sending us a message, to get it steered towards the relevant service within EuroDollar.

"The idea is you shouldn't need to know whether such a service is on our mainframe, mid-range systems, Unix boxes or Novell file servers. You just access it via the mailhub and there's just one message format."

Until gaining its Internet connection in July 1994 with a 64K leased line from Pipex, EuroDollar could only provide clients with access to its mailhub via leased lines. "Putting Kilostreams in all over the country is very expensive," Deacon lamented. "We've still got two or three Kilostreams which are not all that long haul (and therefore not too expensive) to major corporate clients. But we're going to

say to everyone else, all you've got to do is join the Internet. You can have a dial-up connection, ISDN or leased line, whatever you like. It's a saving in physical copper for us."

The question, then, is whether EuroDollar pays for its corporate customers' Internet connections, as it has paid for the Kilostream links? The same argument – that it brings in business – still applies, and of course it keeps the great Internet snowball rolling.

But, as Deacon notes, many customers are already Internet subscribers and others will join for reasons other than the convenience of hiring cars online. However, he admits that in somes cases there will be business reasons for EuroDollar to pay for new customers to subscribe, for example if it appears sales will be generated as a result, while for existing customers there are the savings in leased line costs.

Corporate customers get first choice

Another question is what information and services will be made available on the Internet? The company has begun by setting up WWW pages containing lists of its branches along with contacts and email addresses, plus details on how customers can subscribe to EuroDollar's First Choice privilege card. By September these pages were being accessed by around a hundred people a week.

The First Choice card is really an identity card providing customers with preferential rates. The client information associated with it is obviously extremely useful to EuroDollar agents.

According to Deacon, the use of this card provides a gentle way of trying out the Internet without taking any security risks – it's not a credit card so there are no financial transactions involved – but he emphasises that the company is not going to rush headlong into using the Internet for a full range of payment and reservation services, even if this is the ultimate intention.

In the immediate future, EuroDollar plans to start by expanding the information resources which are available. "We'll be offering company information, rates information, model information," he explained.

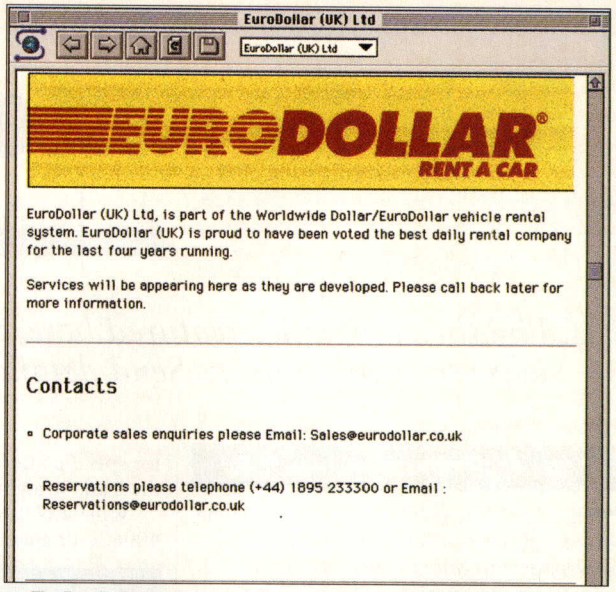
Added to this will be a limited reservations service, which Deacon anticipates being available by Christmas. "Basically the first effort in reservations via the Internet will be a Web service, which is easiest to do because it's forms-based." This will entail customers filling in boxes which are obviously much easier for EuroDollar to process at its end.

But a more flexible and appealing service would enable customers to send in requests by email. Unfortunately, this is not so easy to achieve, and also brings a risk of the company being deluged by junk and hoax email if the service is available to all Internet punters. "For big corporate clients who want to send us coded messages, machine-to-machine, the infrastructure is nearer," said Deacon.

Currently, though, as Deacon explained, this is costly for EuroDollar to handle, even if it provides another way for customers to order a car. "It's pretty unsophisticated. If you send us a message saying 'I'm interested in having a car in Folkestone for a couple of days, how much will it cost me? And I quite fancy a Mondeo.' that will be handled very much as a telephone enquiry would be to our central reservations department in Uxbridge."

Ideally, EuroDollar would like to allow customers the flexibility to send free format messages and, at the same time, automate the processing.

"That's one of the areas we hope to do something with, so we can lay some information technology function over it, rather than doing it person-to-person. We're not too sure at the moment whether we try and pass a message, or if we should have a forms-based solution."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EURODOLLAR
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EuroDollar (UK) Ltd, is part of the Worldwide Dollar/EuroDollar vehicle rental system. EuroDollar (UK) is proud to have been voted the best daily rental company for the last four years running.
Services will be appearing here as they are developed. Please call back later for more information.
Contacts
Corporate sales enquiries please Email: Sales@eurodollar.co.uk
Reservations please telephone (+44) 1895 233300 or Email : Reservations@eurodollar.co.uk

The EuroDollar home pages help to enhance the company's public image

The former would require some way of analysing natural language messages, and would be more complex and costly to implement, but it would improve EuroDollar's visible face. One half-way house could involve EuroDollar responding to email messages by sending an electronic form back to customers via the Internet. "You would send us a message and we send you a template back and you fill in the template and send it back. That's one possibility but it's a bit messy."

Initially, though, if the WWW is used for reservations, this won't happen. "If you're talking about the World Wide Web scenario, it's very much fill in the details you require, select model groups and so on."

Open soon for casual callers

The attraction of the Internet for EuroDollar is that, as well as bringing significant savings to its corporate customers, the Net creates a huge new potential market among casual subscribers. EuroDollar will now accept email enquiries over the Internet from potential customers who have never hired a car from the company before.

"We are in the early stages of developing this service, but there is no reason a cold caller couldn't send us an email message." However, Deacon admits that a great deal of care is needed in this area. He said, "We're not advocating a huge free for all, where people just send us messages for a laugh, saying 'I wonder if EuroDollar will deliver a car to my house if I send them an email'."

He believes that here, too, software can help out by front-ending the system, identifying and then filtering out junk email messages. "These are the cases where we would consider what controls we can put in place."

Deacon expects the most significant use of the Internet for making reservations will be by the company's middle ranking customers rather than by private individuals. The largest clients may still have dedicated links into the mail server as the volume of business will justify the cost, but the impact of this could well be a switch in the balance of the company's business, with a greater proportion of its revenue coming from medium-sized organisations rather than, as at present, the big corporates.

The global reach of the Internet, and the fact that it can be accessed, at least to the extent of being able to send email messages, from all major public networks, is another factor behind EuroDollar's decision to go for it.

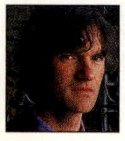
The company has agents throughout Europe and allows cars to be picked up in one territory and relinquished in another. The Internet can be used to hire cars wherever you are and, in future, it could be possible to specify locations for delivery and eventual pick-up of cars over the network. "We're looking at using Internet connections as part of our communications infrastructure across Europe," Deacon confirmed.

Getting the infrastructure in place is, Deacon admits, a big job. "But that's the aim, perhaps by next year. You will be able to have a reservation for a car anywhere within EuroDollar or Dollar (the US parent) territory." This means almost anywhere in the world, except Antarctica, as the company has not yet moved into snow tractor or dog sleigh rental.

Deacon has high expectations of the Internet as a vehicle for attracting new business and improving service while containing communications costs. "We're there for a number of very good reasons. It makes very good business sense from all points of view."

EuroDollar's home page is accessible at `http://www.eurodollar.co.uk`

Paul Deacon can be contacted at `P.Deacon@eurodollar.co.uk` <ends>



Philip Hunter writes widely about datacommunications, is the author of two books on local area networking, and is consultant editor of INTERNET's sister title, Datacom.

Make the most of business contacts

If, like the companies featured here, you're using the Internet to do business, we want to hear about it. Send details by email to neile@computing.emap.co.uk

PUBLISHING

The *Daily Telegraph* is poised to become one of the world's first national newspapers to offer a daily electronic edition on the Internet.

The initiative, which is likely to be available from mid-November, has been developed in collaboration with service provider Demon and hardware manufacturer Sun Microsystems.

The electronic *Telegraph* will be a direct equivalent of the printed version, with several different editions being produced each day. Initially, the service will be free to anyone with access to the Internet and the paper will be marketing Internet starter packs to encourage use of the service.

At present, the only UK national newspaper with a direct Internet presence is the *Guardian* (on www.gold.net), which offers highlights of its weekly *Guardian* Online technology section and arts events listings.

For information on the *Daily Telegraph* service call 081 371 1200.

INDUSTRY

The Welsh Internet Trade Contact Electronic Newsletter (WITCEN) is a new initiative set up to help small and medium-sized companies develop export business by using the Net to find market information and establish trade contacts.

Phil Rees, founder of the service, says, "Going on the Internet is like going abroad, except that you can hop from place to place in seconds, and it costs less than flying.

"It's an ideal way for businesses to prospect for trade. I'm just surprised that no one in Wales is already doing it. Everyone else is leaving Wales behind. Whenever I log on I see Mexicans, Indians, Chinese, Swiss and Americans rolling up their shirt sleeves and doing business with each other while the British talk about the weather and the state of the tube trains."

WITCEN is published monthly and is distributed to a world-wide network of entrepreneurs, import/export agents and industrial buyers.

Although WITCEN is very much about encouraging organisations to get on the Net for themselves, it is not essential for companies to be connected to the Internet to use the service as the WITCEN production team will gather information for specific interest groups and then fax the leads straight to sales managers.

WITCEN can be contacted on 0443 400620 or email philrees@dircon.co.uk

LEISURE

Cyberspace seems the limit for Cyberia, the capital's first Internet café. Since opening only a few weeks ago, over 60 people a day are logging into 39 Whitfield Street, London W1, near Goodge Street tube, to drink coffee, netsurf and exchange tips and tricks.

The place has been so popular that there are plans to open another eight sites. To access the net, Carrera has supplied six 486 DX66 multimedia machines using Netscape, the commercial version of Mosaic, as an interface.

Customers get coffee and a connection at Cyberia

There is also talk that Microsoft may use the site as a showcase for new software, particularly Windows 95.

Charges for access to Easynet via Cyberia are £5 per hour and £3.80 with an NUS card. An email box may be set up for £75+VAT for the first year and £50+VAT per year thereafter.

If you have been waiting for V.34 access to Easynet, part-owner of Cyberia, it should now be available.

Cyberia opens at 11am and closes at 6pm Sunday to Monday, 10pm Tuesday to Friday and 9pm Saturday.

For further information call 071 209 0990, 071 209 0220 (modem) or email keith@easynet.co.uk

ENTERTAINMENT

A year ago Naomi Kokubo was a financial analyst and her husband Steven Hoffman was an independent filmmaker. Now they run a burgeoning multimedia games company from their home in San Francisco.

They had no experience of producing CD-Rom titles but, having quit their jobs, bought a computer and sat down to learn.

"We didn't want to design another Doom or Mortal Kombat," said Kokubo. "We wanted a non-violent game that would appeal to everyone in a family." The result of nine months' hard work is called Gazillionaire. Players run a galactic trading company and must outmanoeuvre their competitors. The game is described as a funky version of Monopoly with a Dr Seus feel, set in outer space.

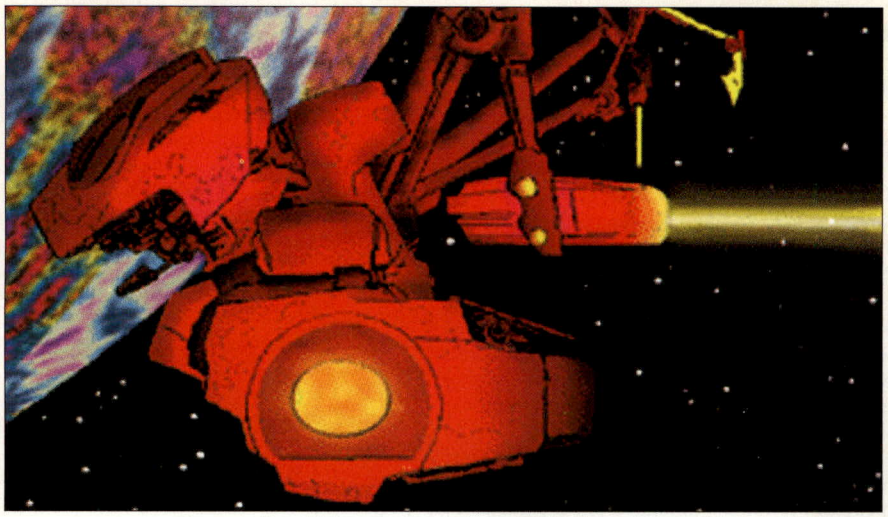
"We learned how to program for Windows, we created 80% of the artwork, we designed the sound and now," said Kokubo, "we're marketing it over our modem on a shoestring budget."

Last month LavaMind released a scaled-down shareware version of Gazillionaire over the Internet and since then the company has been bombarded with feedback, testimonials and orders. "We've had email from Australia, Germany, South Africa and Japan. It's incredible. We've even been contacted by dealers in Korea and Denmark," enthused Kokubo.

The Internet has clearly been a crucial factor in LavaMind's success to date. In fact, Kokubo is adamant that the venture would not have been possible without the Internet. "You should see our apartment – it's filled with boxes of disks and computers and CD-Roms. We are doing everything ourselves, from advertising to packaging, stuffing the envelopes and licking the stamps. The thing that saved us was the Internet.

"For only $20 a month, we can run a global company out of our apartment. We don't have a stranglehold on the retail outlets or billions to invest in interactive TV, but we have a $100 modem and we can reach an audience of 25 million people from our home."

The fully functional but cut-down shareware version of Gazillionaire can be found by logging on to ftp.netcom.com/pub/lavamind and at a number of other FTP sites. For more details, contact the company at lavamind@ix.netcom



Lavamind's Kokuba and Hoffman hope to become millionaires with their game, Gazillionaire, marketed via the Net

EDUCATION

The Student Solar Information Network (SSIN) aims to improve communication between all those who study in the solar energy field. Although based in the UK and aimed primarily at students, it is available to anyone who can receive email.

The core of the network is the SSIN newsletter, produced approximately once a month. It contains a wide range of information, including conference dates, the latest solar developments and relevant Internet resources. There have been four issues, with a fifth planned for early November.

Subscribers, who now number nearly 300 in over 25 countries, are encouraged to distribute the newsletter to colleagues who do not have email and to suggest improvements to its content and layout.

The next step for SSIN is the establishment of a number of subject-specific mailing lists, for instance in areas such as solar electricity generation, so that students studying in specific fields can be put in direct touch with one another.

To subscribe to SSIN, simply mail to `ssin@tfc-bham.demon.co.uk`, including details about your interest in solar energy.

SSIN has two FTP sites and a WWW home page, maintained voluntarily by subscribers. For Europe, the FTP address is `ftp.lesosun1.epfl.ch`, then access `pub/ssin`. In the US, it's `sunsite.unc.edu`, then go to the directory `pub/academic/environment/alternative-energy/ises/SSIN`.

To call up SSIN's home page on the WWW, access the following site: `http://lesowww.epfl.ch/ssin/ssin.html`

COMPUTING

The IBM software development and research laboratories at Hursley in Hampshire have recently upgraded their 64Kbps line to Pipex's 256 kbps Worldwide PLUS Internet access service.

More than a thousand users now regularly employ the Internet to email colleagues and customers around the world, send and access information on products and services, and keep up-to-date with competitors and the market in general.

Hursley has become the first IBM laboratory to set up a WWW home page. Users now have the opportunity to access IBM's corporate home page for details of all IBM products and services, while Hursley's own home page provides specific information on current software development, involving transactions systems, telephony integration and desktop conferencing.

Commenting on the upgrade, Clive Keyte, workstation and networking solutions manager at IBM Hursley, said, "IBM is actively embracing the Internet to promote a greater degree of openness and free access to information for the software development and marketing community. The current growth rate of users is a clear indication that the Internet will become a major factor influencing software development and sales."

IBM's corporate home page is at `http://www.ibm.com`. IBM Hursley's is at `http://www.hursley.ibm.com`

INFORMATION SERVICES

Library supplier Dynix, part of the Ameritech group, has witnessed increased Internet use among academic, specialist and library clients.

The company has reached an agreement with the British Library's National Bibliographic Service to supply MARC catalogue records. A further agreement will be signed shortly with the Library of Congress, making an extensive database available to UK libraries.

Over the Internet, users will access the database held on a file-server at Dynix's UK headquarters in Middlesex. It will then be used to support libraries' own cataloguing activities and help in determining their stock acquisition.

The new service will be fully integrated into Dynix's existing cataloguing and acquisition programs, making searching and use of the remote database a relatively simple procedure.

Once users have found an appropriate record in the database, they are given an option to purchase it. The record is then automatically transferred to their local database. For further information call Tim Blom on 0895 824091.

CATERING

Pizza Hut and SCO (Santa Cruz Operation) have announced PizzaNet, a system that enables users to order pizza delivery electronically via the Internet.

The pilot project covers the Santa Cruz area and is being used to study the feasibility of expanding to other cities around the world. This new service is intended to enhance the existing service offered by Pizza Hut, which already runs home delivery on the SCO Open Server at over a thousand restaurants.

Potential participants in the pilot need a computer with direct Internet access and a copy of forms-enabled Mosaic. To place an order, customers access the centralised PizzaNet server at Pizza Hut headquarters in Kansas, via the Web.

This 486 system uses NSCA's Mosaic and HTTP (Hypertext Transfer Protocol) to present customers with a customised menu page. They enter their name, address, and phone number, along with requests for pizza and beverages. The order is then relayed via modem and conventional phone lines to the SCO Open Server system at the nearest Pizza Hut outlet. The local restaurant can then telephone first-time users to verify orders. Payment is made on delivery.

For more information contact Helen Pringle at SCO on 0923 816344. <ends>

Researchers at the Hursley laboratories are the first IBM back-roomers to have their own WWW home pages

@Letters...

We received a tumultuous amount of mail in response to our first outing last month. Keep the correspondence coming in by sending email to the Editor at
neile@computing.emap.co.uk

I must say that **INTERNET** magazine deserves enthusiastic support and I wish you every success. Unlike others, it is clearly aimed at UK readers, the text is easily readable and there is no attempt to perpetuate an air of mysticism – I have accepted the launch subscription offer.

In my opinion the following will become important features in the next 12 months: commercialism, security, usability, training, seminars/events, standards ratification, navigation, addressing, censorship, lan management, pricing of services and pornography.

I already have the required hardware to use the Internet. As for software, I expect that to be supplied by the service provider. I now subscribe to CompuServe but will probably join Demon because it offers superior net connectivity.

John G Evans, Lichfield, UK
100411.1126@compuserve.com

Great to see a new magazine that is devoted to the Internet. The list of sites around the world is very useful, especially as I'm a newbie. I've just got a few questions though, as follows:

Who are you aiming it at? Will you do more pages? The first one was 30 pages, so £15 a year for subscription seems a bit steep. How are you going to keep it changing? New readers are going to want the information you're putting out now, but after a few months others are going to get fed up of learning about FTP and the Web. Are you just going to be paper-based or are you going to set up more info online?

Jarrod Poynton, UK
me@jjp.win-uk.net

The Editor replies: **INTERNET** *is primarily aimed at people looking at using the Net for business purposes, but it will also look at the social and recreational issues as well.*

As you can see from this issue, we are certainly going to increase the issue size each month. As for the level of expertise, we will attempt to keep up with the development of users – as new users become experienced users we will intensify the contents accordingly.

Eventually, you will be able to read **INTERNET** *online, using a WWW browser pointed at the Emap web pages which go live in the near future.*

My purpose in writing is to give you some feedback on the magazine and my main criticism is not what's in it, but rather what's not. While I realise this is the first issue, could you not consider including a section of contributions from your readership, as well as perhaps a general letters page (as distinct from your FAQ section)?

For example, useful tips when FTP-ing, such as remembering to set your transfer protocol to binary (image) from the default ASCII, or a reminder to remember to pay particular attention to case when moving about directories. I am in the throws of assisting in organising our own campus-wide network for the university so that all staff and students will have easy access to both local and external information services via the Internet.

Each faculty and department is building their own pages and we hope to be up and running by Christmas. Your section on What's On will prove particularly useful to add to a database of useful (or otherwise) addresses we are compiling.

On page 7 of the first issue, however, the address for OTIS should be: `ftp: sunsite.unc.edu/pub/multimedia/pictures/OTIS` (ie case sensitive). On the whole, though, a good read with lots of useful stuff.

Joe Murphy, The Queen's University of Belfast, Northern Ireland
Joseph.Murphy@Queens-Belfast.AC.UK

I am sorry to say I am disappointed with your new **INTERNET** magazine. I have been using the Internet since January this year but you assume such a depth of knowledge that it is off-putting. The What's On section is great, but where does it say how to get to these addresses? A simple glossary would help. I welcome the idea of businesses relating how they use the Internet, but how about some businesses which have a non-technical product? How are they using the Internet? This would encourage people far more. You also need to have some female input into your magazine. Make it more accessible to the whole population.

Danielle Ellis, School of Design & Ceramics, Staffordshire University, UK
dctdne@cr41.staffordshire.ac.uk

The Editor replies: *Pitching the technical level of any publication is difficult and we will certainly endeavour to explain the terminology as we go along. If you need a definition of a specific word, turn to The Glossary, which will be a regular feature, on page 46 of this issue.*

Over time we will definitely be looking at how a wide range of businesses and organisations use the Internet and we are very much aware that **INTERNET** *must appeal to, and interest, all sections of the community. Obviously women make up a growing proportion of Internet users and ways of encouraging them to get online is something we will be looking at in a future issue. In the meantime, anyone women with stories to tell about using the Internet or views on this subject can send them to* `lisah@computing.emap.co.uk`

I read your article on Mosaic and most informative it was too. However, you commented that to configure it correctly one has to hand-modify the `.ini` file. Well, there is now a Windows application called setmos which will do it for you, mostly by point and click. Use Archie to search for `smosaic.zip`

BTW, I love the magazine. As far as I'm concerned anything which popularises the Internet here in the UK is good news.

Bob Day, Harrier Softnet Ltd (UK)
bobd@harrier.com

In issue 1 you state you have a complete list of Internet providers but I find it very hard to believe you have never heard of Almac, the biggest BBS in Europe, sited at Grangemouth, Scotland.

While you obviously had a tight press date, it is the only Internet provider based in Scotland and has had full Internet facilities through a BBS door for the past year. It has 12 V.Fast class 28.8 Hayes modems lines, to be upgraded to V.34, two ISDN lines and five USR Couriers DS 16.8 lines, to be upgraded to V.34 in the near future. It is just about to offer a direct connection, just like CityScape, which you featured. At the present time there is no set-up charge and the cost is £8 per month. I am not connected with Almac other than being a happy user.

For details, phone Alastair McIntrye on 0324 666336 (voice) or log on using 0324 665371 Hayes V. Fast Class modem. Otherwise keep up the good work.

Eddie Cairns, Auchenblae, Scotland
eddie.cairns@almac.co.uk

The Editor replies: *Any omissions last month were due to deadline constraints – we intend to include every UK access provider in the future.* *See page 48 for our updated listing and please let us know if we have missed any out.*

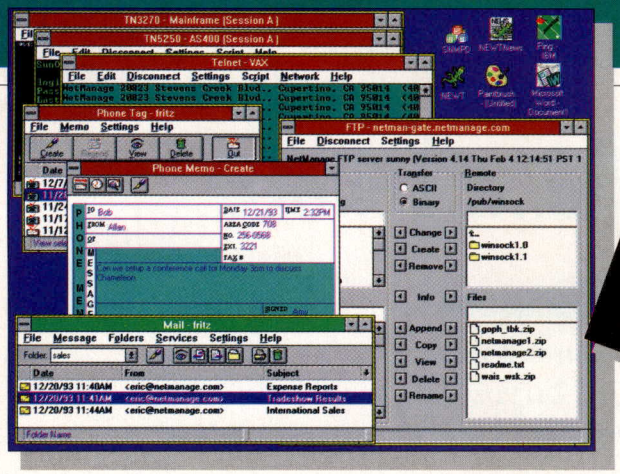
First, congratulations on a great mag, I thoroughly enjoyed it, especially that piece on Pop Will Eat Itself! Unfortunately, we have not ended up where we said we were with the music database as our initial Internet address was turned down. Instead the PWEI database can now be found at **http:// www.elmail.co.uk/music/pwei.** Sorry for the confusion. Keep up the good work.

Richard Davies, UK
cdmail@cix.compulink.co.uk

I find this magazine interesting as I am writing a special exercise in HTML and some of the indexes in the front have given me addresses to try and use to improve the project for my degree. Thank you.

Frank T Lippit, UK
ftlippitt@kiwicomp.win-uk.net

TCP/IP for Windows



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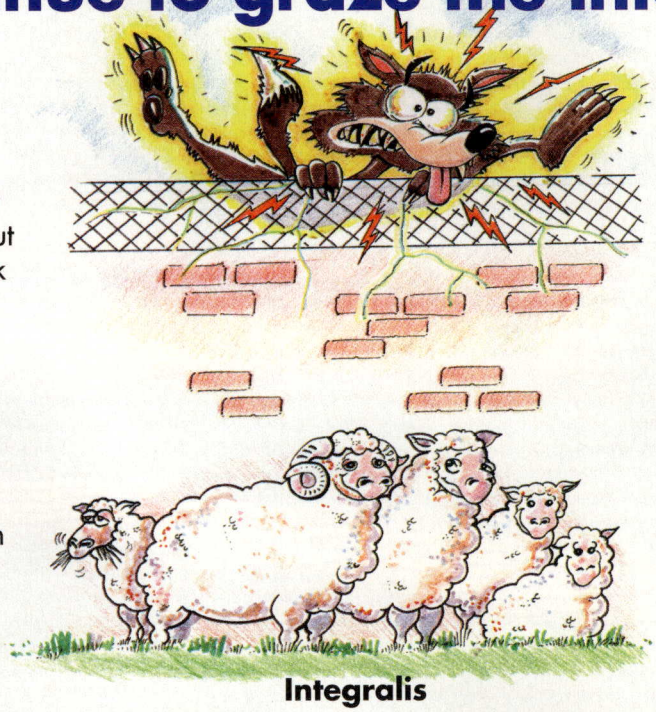

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Trailblazing router that cuts a swathe through the Internet maze

This section provides practical, down to earth information about the products you are thinking about buying. This month, Paul Lavin and Tony Dennis give readers the benefit of their first hand experience

NETBLAZER ST
Supplier: Telebit
Price: from £2995
Tel: 0635 528730
Fax: 0635 528311
Email: ema_sales@telebit.com

Security is a valid concern for any business connecting its internal network to the Internet, but paranoia is just as inappropriate as laxity. One reasonable way to handle both the connection and security issues inherent in a business Internet application is to employ a router. A router is a box that sits on your network and directs traffic, both inwards and outwards. This capability makes it a valuable asset in providing unimpeded access to the Internet without necessarily leaving your private business matters unprotected.

Pipex, the Internet service provider which claims about 70% of the UK's commercial Internet business, recommends the Telebit NetBlazer series. In fact if you want an ISDN connection to the Internet, Pipex specifies a member of the Telebit NetBlazer series as a requirement. The company certifies that the Telebit products work with its network services and, as a consequence, if you follow its advice, Pipex is in a good position to diagnose any problems you may have.

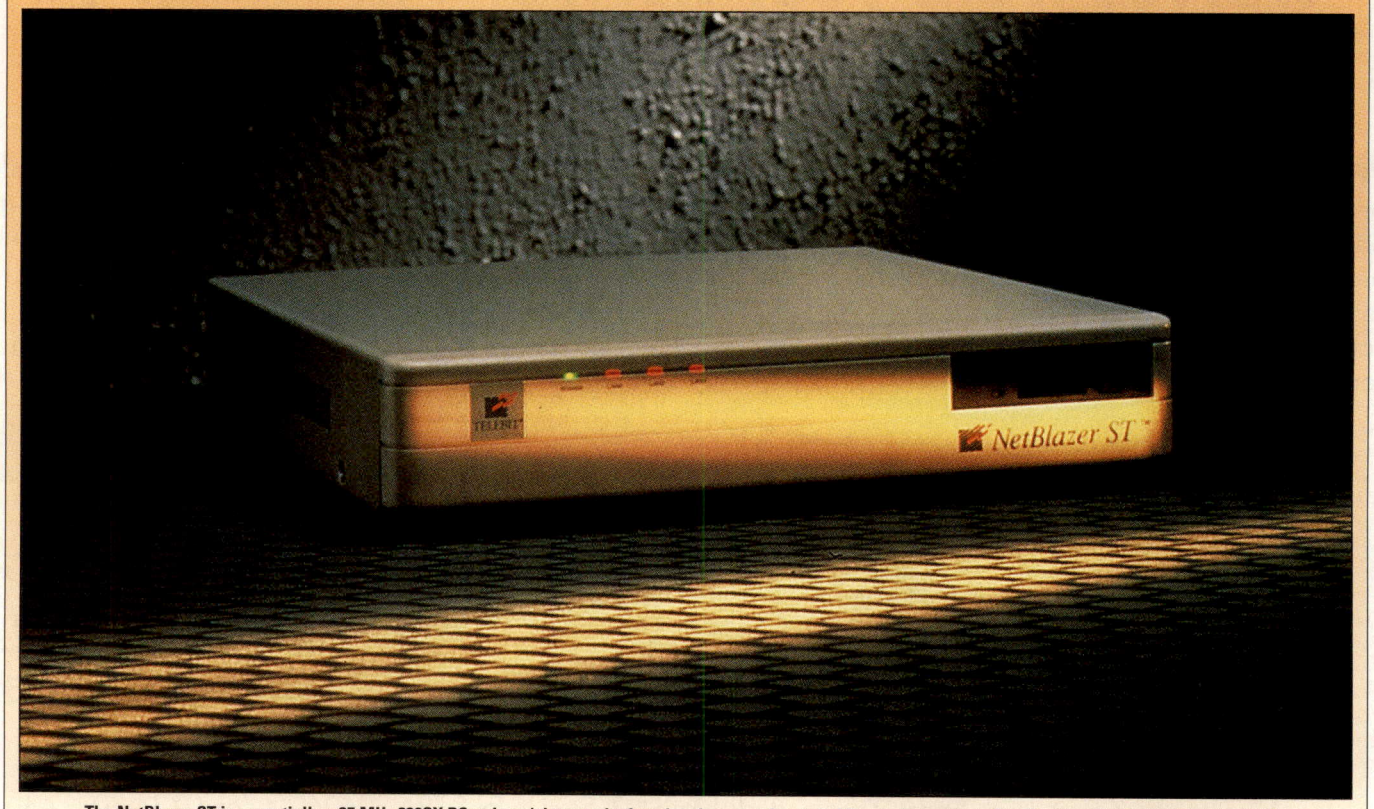
However, routers should be plug and play. Standards exist but, unfortunately for the buying public, product differentiation assumes a higher priority than interoperability. Until there is a bit more pressure from users for bedrock compatibility, the silly game will continue.

For six months I have been testing a NetBlazer ST with a Controlware CITAM terminal adapter (TA) and Pipex's ISDN service, and it does indeed work, delivering all the bandwidth necessary to play a full interactive part on the multimedia-rich WWW for the handful of users in my office.

Below the ST in the NetBlazer family are the PN models which look like older-style modems with a floppy disk slot in the front. Above it are the Model 40s which handle much bigger networks than my own 10-workstation lan.

Software is the key

In its heart of hearts, the NetBlazer ST, which measures only 14 inches square and three inches high, is a 35 MHz 386SX PC stripped down to its functional core and assisted by a large amount of sophisticated software held in ROMs. It is really the software that provides the value to the NetBlazer family – you know how cheap PCs are these days. In fact, some users



The NetBlazer ST is essentially a 35 MHz 386SX PC stripped down to its functional core and assisted by a large amount of sophisticated software held in ROMs

dedicate PCs on their network for routing by using a heavy duty package like SCO Unix to provide the functionality, but still, there is much to be said for the sealed box, single-purpose router that provides a stable environment for a vital network function.

The NetBlazer has no monitor or hard disk (it does have a 3.5 inch, 1.44 Mb floppy for configuration backups), so it sits there humming gently to itself in an unused corner, not causing much noise pollution or eating up too much electricity.

What it does is to provide on-demand, multi-protocol lan-to-lan routing over analogue and digital dial-up lines, including ISDN and T1. The whole family of Telebit routers supports NetWare's IPX, Apple's AppleTalk Phase 2 and a very standard TCP/IP, which is the one that does the biz for Internet users.

Inside are a number of PC-style expansion slots that take one or more network cards (ethernet or token ring), one to 10 ports for synchronous links and two to 26 ports for async comms. Wide area links can be created with high speed modems (Telebit modestly recommends its own T3000 World Blazer for PSTN connections), ISDN TAs or T1 line adapters.

The NetBlazer is configured by using a terminal. I currently have a Wyse-325 hooked into mine but in the past I have used a dual-session Uniterm II to keep tabs on my TA and router at the same time. You could also use a PC running the Windows terminal.

The NetBlazer was easy for me to configure as I know what to do with a command line, but dedicated Windows or Mac users may feel distinctly out of step with this product. Telebit does provide a GUI interface but it is linked to its IPX routing function, leaving TCP/IP-only Internauts and Mac-heads to cope as best they can. Pipex provides a full script for an optimal set up.

Lan management is a crucial issue today and routers are very helpful in keeping things under control. The NetBlazer can be handled by Sun Net Manager or an HP Open View management station as Telebit supports SNMP MIB II and an enterprise MID. Any Telebit modem which is attached can be managed as well. The NetBlazer can even do the accounts, billing individual departments whenever it dials out.

Security with a capital 'S'

The five layers of security Telebit builds into the NetBlazers will keep even the most nervous system administrator calm and cool. Access to configurations and routing is covered by the usual password control but this can be supplemented with SecureID passcard devices. For even more security, you can use the callback feature so that no incoming call is ever accepted for more than a few seconds – all persistent connections are originated by the NetBlazer.

Telebit adds DES-based cryptographic handshaking on top of all this and Kerberos authentication can be called on as well. To ice the cake, the NetBlazer can easily be configured to perform IP packet filtering, and if anyone needs more lan security than this, they shouldn't put their server in the same room as a phone point!

A computer system is only as secure as its weakest link and the job of a system administrator to keep finding the weak links and fixing them. One easy way to shore up access to your lan is through IP filtering. The principle is simple and the implementation relatively straightforward on a NetBlazer: you refuse access to anyone that is not an authorised user. If incoming Telnet is only ever required from known hosts, you set the router to reject all others. The management cost of maintaining the filters is more than compensated for by additional security.

Pipex provides sample filtering configurations in its service pack. This involves 'hiding' a portion of your network from the outside world, with the mailhost (for SMTP, NNTP and DNS services) the only portion of your network that is 'visible', apart from the router. NetBlazers may provide a bit more security for some users than other routers in that they can filter outgoing packets as well, preventing interactive sessions with unauthorised hosts. This could be an annoyance to others, however.

Routers either work well or they don't. The Telebit NetBlazer ST has worked admirably in my long term test (not one hiccup – now if only Microsoft...) and I can add my recommendation to Pipex's. If you need to route IP over ISDN, maintain your lan's manageability and keep the bad guys out, then Telebit's NetBlazer is a router to trust.

Paul Lavin

review: internet anywhere

Go anywhere, but take UUCP and leave the driving to others

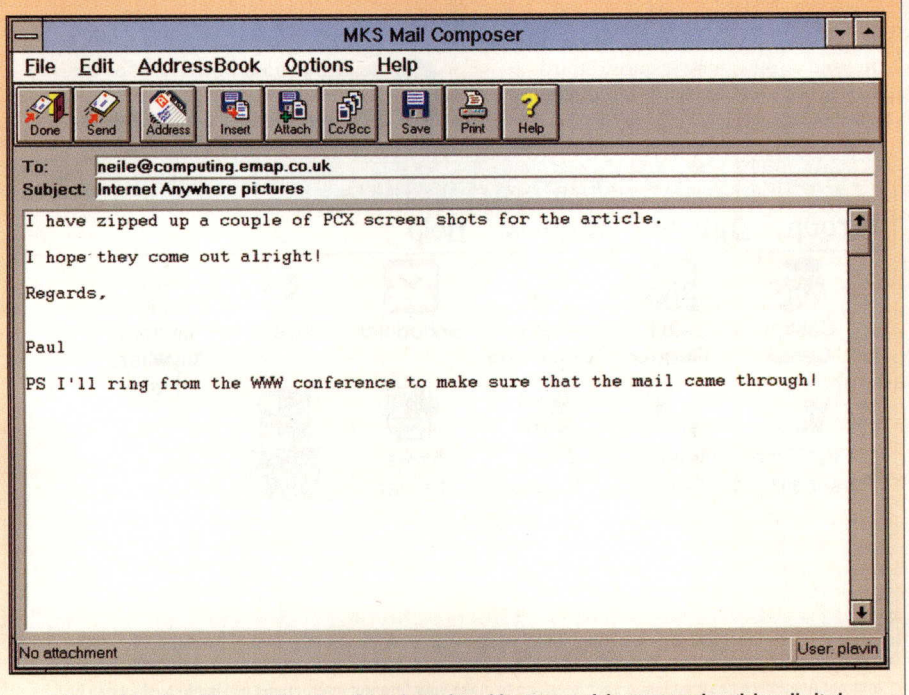
INTERNET ANYWHERE
Distributor: System Science
Price: from £129
Tel: 071 833 1022
Fax: 071 837 6411

While the Internet comes only in one size – global – users often have different size requirements when they connect to it. The hot set-up for cruisin' the Web directly connected to a T1 line is definitely not the set-up you want for sending and receiving email in your home office, when travelling, or if your business needs extend to light email and a few Usenet newsgroups.

Making TCP/IP a priority

One hurdle that any Internet novice must contend with is the need to put TCP/IP on their Mac or PC.

Depending on your choice of TCP/IP package and what other software is riding along in the computer with it, this may vary from a straightforward installation in five or 10 minutes to an impossibly frustrating grind. In my experience, your fate can also hang on the skill and luck of


MKS Mail Composer
File Edit AddressBook Options Help
Done Send Address Insert Attach Cc/Bcc Save Print Help
To: neile@computing.emap.co.uk
Subject: Internet Anywhere pictures
I have zipped up a couple of PCX screen shots for the article.
I hope they come out alright!
Regards,
Paul
PS I'll ring from the WWW conference to make sure that the mail came through!
No attachment
User: plavin

The email portion of Internet Anywhere has a host of good features, and the message length is unlimited

the installer, too. And one final negative issue – TCP/IP generally costs money.

One way to avoid all the hassle, expense, and more hassle, is to use a UUCP connection to the Internet. With a package like Internet Anywhere from US company MKS, no TCP/IP, no SLIP, no PPP, no winsock or any other network alphabet potpourri is required.

UUCP connections have fallen out of favour because of their inability to access the multimedia, hypertextual WWW, but they still deliver core Internet functionality at a very reasonable price and are often much easier to configure and use. Does it matter to you who is driving as long as you get onto the Internet? UUCP-attached Net denizens leave the driving to others.

PC User Group benefits

In the UK, the PC User Group (PCUG) can sell you a UUCP Internet connection for £6.75 per month and give you a Windows software package called WinNet to connect with. The PCUG is just the cheapest of the lot as there are another five access providers listed in MKS's reference manual (although one, Pipex, no longer caters to UUCP connections). However, with a little bit of work you can get the PCUG's Internet server to sing along with Internet Anywhere.

Installation of Internet Anywhere is as simple as any other Windows package. Up to a point, it is largely self-configuring and will sniff out your modem and its capabilities automatically. However, the fun starts when you need to do some alterations to the 'chat' script that logs in to the PCUG server.

It isn't very technically demanding to configure Internet Anywhere and the manual does give some general advice (supplemented by the PCUG's first rate technical staff). However, once again the comparison is against the pre-configured, lie-back-and-think-of-England bundle provided gratis by PCUG: Internet Anywhere does require work and WinNet doesn't.

The email portion of Internet Anywhere has a host of good features. Not only can you send copies of messages to third parties, but you can send 'blind' copies as well.

Message length is unlimited but, alas, some of your email recipients will have old-fashioned mail readers that cut things off at some unknown pre-determined length. This pluspoint could consequently cause problems if you are transferring large files. All of the usual composition, reply and file actions are included. There is a well thought-out email address book, too.

I use email a lot to send binary files to my business associates. Internet Anywhere has rudimentary capabilities but cannot handle MIME mail extensions which provide a good measure of cross-platform compatibility. You can UUencode/decode, compress and encrypt files, as well.

Usenet newsgroups, similar to the forums on CompuServe, are useful in a business context for software and hardware support, as well as trawling for customers.

I recently discovered that there is a healthy job market using the Internet to find employees or jobs (depending on which side of the interview desk you are on!) Internet Anywhere has a good news reader, but again so does WinNet.

Efficient documentation is the key to learning any new software package (and indeed to finding your way around the twists and turns of the Internet).

Internet Anywhere is blessed with excellent manuals (with the exception of the somewhat out-of-date list of access providers which is mentioned above). The user guide is a particularly good introduction to email and Usenet newsgroups and it should be pointed out that the freebie competitor, WinNet, has no documentation at all other than help files.

The downside of Internet Anywhere, and indeed any UUCP-based Internet access package, is that the lack of Web, FTP, or Telnet keeps you out of the fast lane.

If this isn't initially important for you, Internet Anywhere has a polished user interface to make your Internet interactions as simple as they can be.

However, reasonable minds can differ about what is value for money and many IBM PC User Group Internet subscribers swear by the 'free' package offered with their connection. You pays your money and you takes your choice!

The IBM PC User Group can be contacted on 081 863 1191.

Paul Lavin

review: isis workstation card

Winning combination gives high-speed, low-cost access

ISIS WORKSTATION CARD
Suppliers: EUnet and KNX
Price: from £1895
EUnet tel: 0227 266466
KNX tel: 0943 467007
EUnet email: info@britain.eu.net

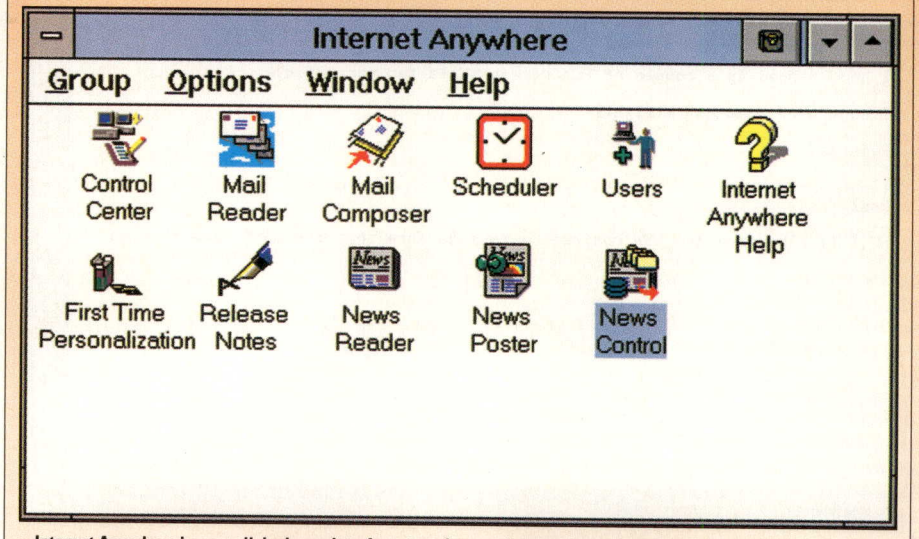
One of the main objectives for the serious user is to have a permanent link into the Net which will, for example, allow almost instantaneous access to email.

The standard solution – a private/leased line providing a permanent connection – is too expensive for individual users since it costs thousands of pounds per annum to run. This is exactly where ISDN (Integrated Services Digital Network) can provide the ideal solution.

ISDN offers the same capacity as a leased line – 64K bps – but in fact it provides two such links. However, ISDN connections can be established and discontinued in milliseconds, so the user only pays for short duration calls. The installation cost of an ISDN 2 line from BT is also a more affordable £400.

ISDN – the clear choice

Hence the obvious means of obtaining a high-speed but low-cost link into the Net is to take the ISDN route. This is exactly what hardware supplier KNX and Internet provider EUnet have decided to do (see Getting Started, page 22). The theory is fine: marry an existing ISDN card for PCs to an Internet provider with an ISDN capability and you should have a winning combination. However, putting the theory into practice showed up more than just a few flaws. KNX's ISIS lan workstation card is an intelligent device. For example, it sports its own 1Mb of memory and an onboard processor. This takes the job of



Internet Anywhere has a polished user interface to make your Internet interactions as simple as they can be

running the ISDN link away from the PC so it won't slow the PC down when running applications. In normal circumstances the ISIS PC card is used in place of a standard ethernet NIC (Network Interface Card) to provide a simple connection between two physically separated locations.

This enables a PC in a local branch office to dial into the corporate lan without the need for any particular extra skills or training. To the end user, accessing the the head office NetWare file server via ISDN is no more difficult than swapping files with another PC located in the same room.

Providing a link into the Net simply requires EUnet to be running a compatible ISIS card or bridge, which the company already does. However, **INTERNET** magazine approached the problem from a slightly different perspective than normal.

Replacement strategy

Our objective was to replace an existing working link into EUnet, achieved by modem and PPP protocols, with an ISDN connection. This requires running some form of network software on the PC, so Microsoft's Windows for Workgroups and TCP/IP protocols were selected, since they represent a rational and low-cost choice for the single user. By contrast, obtaining a copy of NetWare simply to run ISDN didn't make sense.

According to John Robson, marketing director at KNX, there is nothing inherently wrong with such a set-up. Nonetheless, in practice, this proved to be far from the truth.

INTERNET tried two KNX cards individually, in two entirely different PCs. One of the PCs was actually a Pentium-based (80586) PC from Gateway, while the other was an ordinary 80386-based machine. It made no difference, however: the software still refused to run.

If all the software had installed correctly it would have been a simple matter to call into EUnet's online service via the latter's ISDN port. The ISIS card's toll-saving facility ensures that the ISDN link is only live when data is actually being passed. In periods of inactivity the link is broken, which saves the user from having to pay high call costs to BT or Mercury.

EUnet supplies its existing customer base with Chameleon software from NetManage. This suite provides all the modules a user needs, including popular Net utilities such as Mosaic for browsing WWW servers.

Running up against a problem

The conversion process should have been simple. The existing PPP settings need to be replaced with those for an ethernet connection. Sadly, when **INTERNET** tried this, EUnet's technical support department was unprepared – it was unable to supply the telephone number of the company's ISDN port. At the time of writing, the link is still inactive, so it is not possible to report how fast the software runs.

If **INTERNET** had chosen to run NetWare instead of Windows for Workgroups, undoubtedly these problems would have not been encountered.

The ISIS card is capable of aggregating both ISDN 64Kbps channels together to provide a single 128Kbps line

EUnet intends to sell Chameleon and the ISIS card as a complete package so these problems should not occur in future, but by accident we have revealed a hole in the market. Existing suppliers are geared towards dealing with corporate customers where the system manager takes charge of establishing links. When it comes to dealing with individual users, the system breaks down.

In the next issue we should be able to report that the problems have been fixed and give an indication of just how well the link works. For example, the ISIS card is capable of aggregating both ISDN 64K bps channels together, to provide a single 128Kbps. It would therefore be interesting to see how fast Mosaic runs using this particular configuration!

Tony Dennis

review: hotmetal

Professional page mark-up package hot off the presses

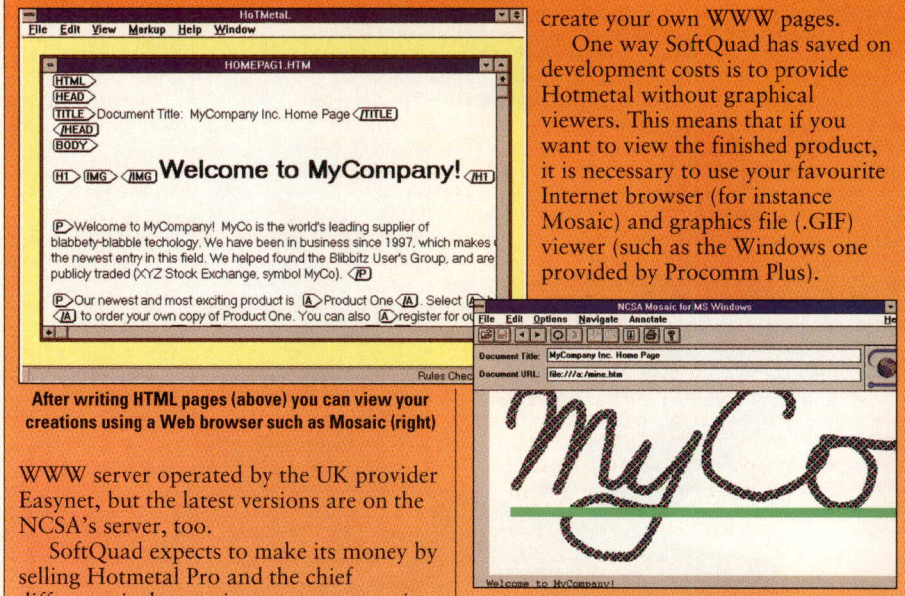
HOTMETAL
Manufacturer: SoftQuad
UK supplier: Datazone
Price: Free (£195 commercial version)
Tel: 071 221 8026
Fax: 071 727 6045
Email: hotmetal@datazone.com

The Internet would be a very dull place indeed if surfers were restricted entirely to looking at plain text. However, as experienced Net buffs will already know, there are World Wide Web servers which display text and colour graphics to liven up the user's screen! But how are these pages produced?

They are created using a language known as HTML (HyperText Markup Language) and to get started with HTML you need an appropriate editor, which is exactly where HoTMetaL (the pun is 'H...TM...L') comes in.

The really good news about Hotmetal is that it is free. As long as you don't make money by creating HTML pages for commercial organisations, the authors – SoftQuad of Toronto, Canada – won't get upset.

The version of Hotmetal which **INTERNET** obtained was actually for Microsoft Windows, although the program is reputedly also available for Sun Motif users. The actual files were dragged off a


HoTMetaL
File Edit View Markup Help Window
HOMEPAG1.HTM
HTML
HEAD
TITLE Document Title: MyCompany Inc. Home Page /TITLE
/HEAD
BODY
H1 IMG /IMG Welcome to MyCompany! /H1
P Welcome to MyCompany! MyCo is the world's leading supplier of blabbety-blabble techology. We have been in business since 1997, which makes
the newest entry in this field. We helped found the Blibbitz User's Group, and are
publicly traded (XYZ Stock Exchange, symbol MyCo). /P
P Our newest and most exciting product is A Product One /A. Select
/A to order your own copy of Product One. You can also A register for
NCSA Mosaic for MS Windows
File Edit Options Navigate Annotate
Document Title: MyCompany Inc. Home Page
Document URL: file:///c:/mine.htm
myCo
Welcome to MyCompany!

After writing HTML pages (above) you can view your creations using a Web browser such as Mosaic (right)

WWW server operated by the UK provider Easynet, but the latest versions are on the NCSA's server, too.

SoftQuad expects to make its money by selling Hotmetal Pro and the chief difference is that paying customers receive support from the dealer/reseller. This should include a decent manual, the lack of which proves to be something of an obstacle with the basic version of Hotmetal.

Manual operation

The manual supplied on disk is in Postscript format so it's necessary to find a kind person with the necessary laser printer to output its 55 pages. The information is adequate but not exhaustive. Nonetheless, it is quite possible to get up and running quite quickly and create your own WWW pages.

One way SoftQuad has saved on development costs is to provide Hotmetal without graphical viewers. This means that if you want to view the finished product, it is necessary to use your favourite Internet browser (for instance Mosaic) and graphics file (.GIF) viewer (such as the Windows one provided by Procomm Plus).

The crucial point about Hotmetal is that it effectively compiles pages and checks them for mistakes. HTML is in fact a subset of the Standard Generalised Markup Language (SGML) which dictates that documents should obey a defined set of rules. Hotmetal has these rules built-in, so if you make a mistake editing a page it will automatically detect it.

The other major facility is that it generates the necessary pointers so that pages can be properly located on a WWW server. These pointers are known as URLs (Universal Resource Locators) and Hotmetal provides the tools so that you can check that they are correct.

Hotmetal provides a number of standard templates (14 in all) which can be tailored to the user's own needs. By looking at these templates it is relatively easy to discover popular effects such as highlighting text so that it points to another WWW page. Hotmetal isn't particularly good at importing text from files created with sophisticated wordprocessors. However, it does have one of the most sophisticated text search and replace mechanisms I have ever seen.

Is professionalism worth the price?

It is almost impossible to predict exactly how many users will feel the need to pay out £195 for the full professional package. **INTERNET** spoke to one UK dealer, Datazone, which claimed the Pro version is slated for release any day now. Hence it wasn't possible to do a direct comparison between the free and commercial versions. However, some of the new facilities in Pro – such as a spelling-checker and thesaurus – will need anglicising before they will appeal to a UK audience.

In terms of usage, Hotmetal has a steep learning curve. However, it is akin to using a DTP package – if you want the advanced facilities it is worthwhile. You can't expect Hotmetal to be as easy as a standard wordprocessor, but for those who want to transform their ordinary Net hosts into an exciting WWW server, Hotmetal has all the tools you will need.

Tony Dennis

INTERNET *Book Service*

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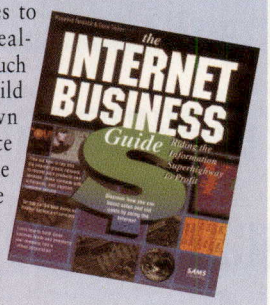
Rosalind Resnick & Dave Taylor
THE INTERNET BUSINESS GUIDE
for
£22.95

This new publication promises to educate readers "through real-world examples" on topics such as: using the Internet to build market share, track down business leads, communicate with colleagues, search online databases, offer cost-effective customer support and access critical information. The book is a must for anyone considering using the Net in a commercial situation, and makes interesting reading for everyone else.



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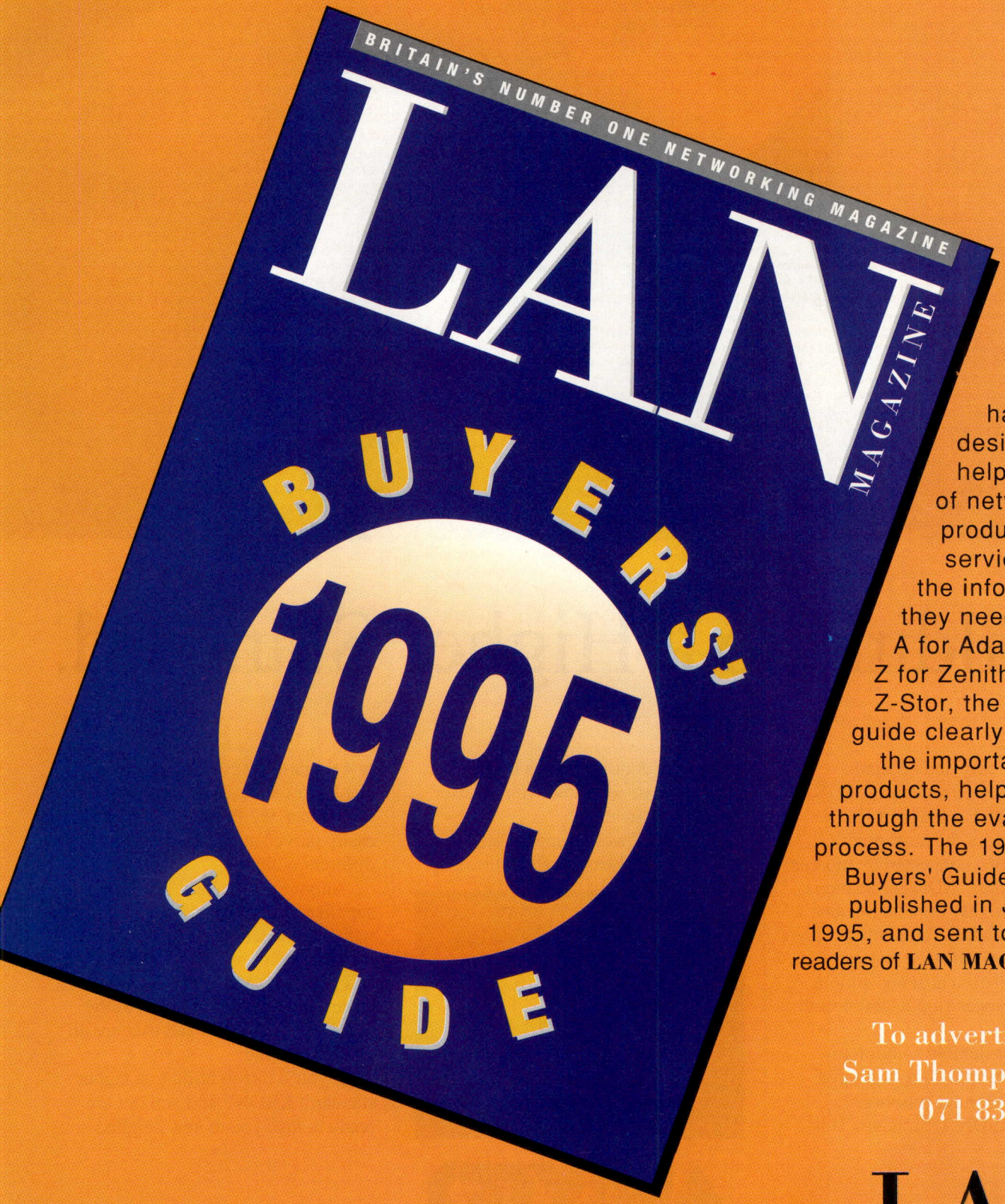

The **LAN** Buyers' Guide has been designed to help buyers of networking products and services find the information they need. From A for Adapters to Z for Zenith Data's Z-Stor, the buyer's guide clearly lists all the important LAN products, helping you through the evaluation process. The 1995 **LAN** Buyers' Guide will be published in January 1995, and sent to all the readers of **LAN MAGAZINE.**

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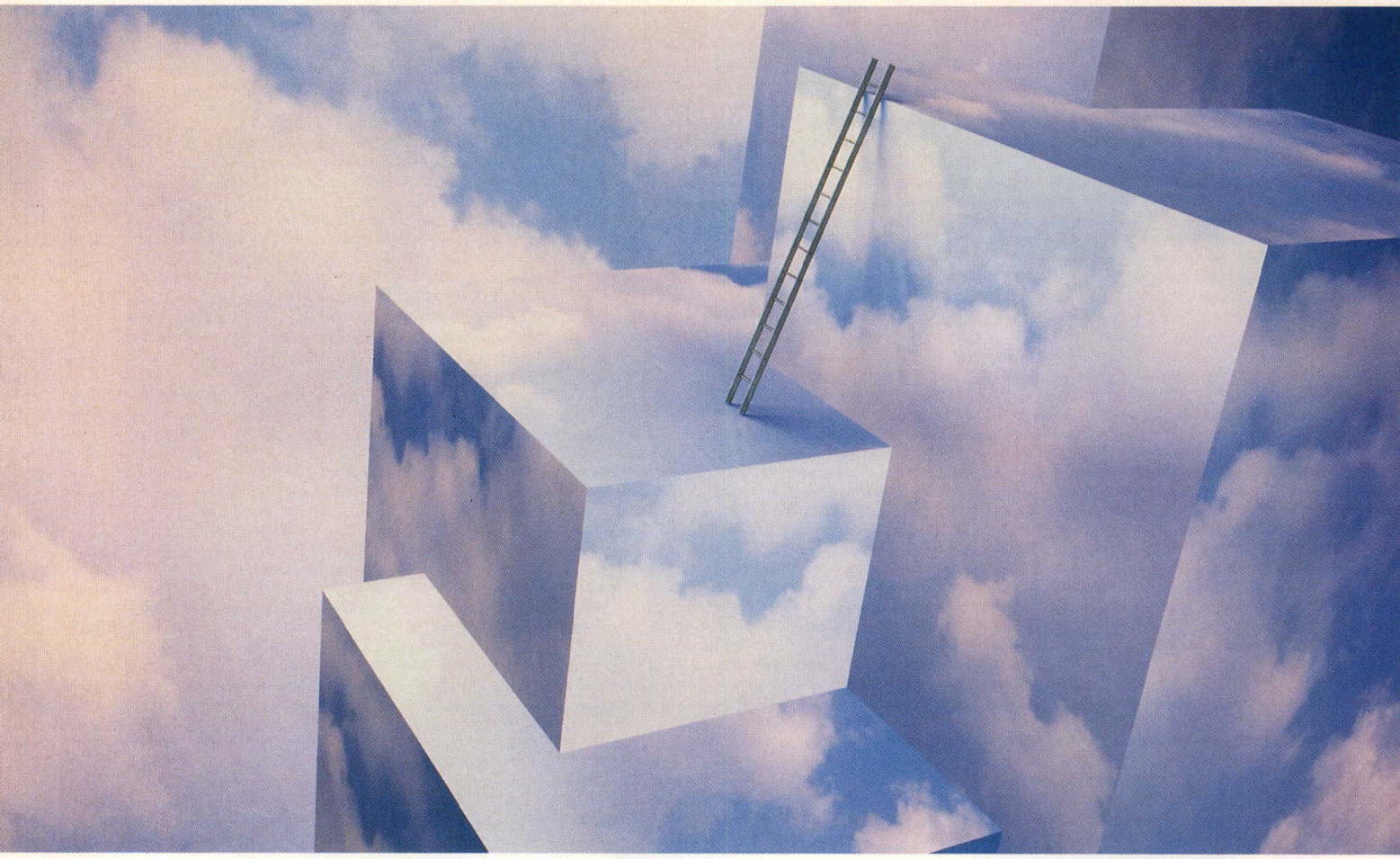

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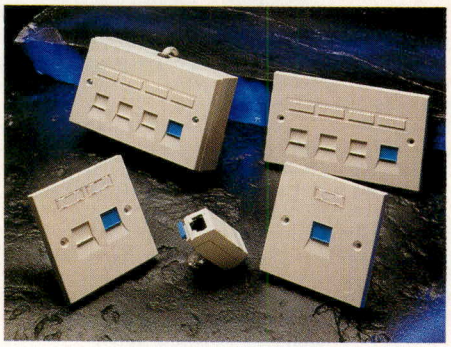

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Mind how you go

Customers are already buying via the Internet and business will soon be booming. Neil Ellul reports on the selling strategies which are likely to pay off

Have you ever typed in your credit card number and sent it across unecrypted lines to purchase something? And if you did, were you worried about the security implications?

At last month's Networld+Interop trade show in Atlanta, Georgia, three Internet gurus, between them responsible for building and shaping the Net as we know it, were asked the same question.

Frederick Avolio replied, "Yes, actually I have. I felt compelled to try out the online florist and sent flowers to my mother. And no, I was not at all worried about it, as it was a one-off experiment".

His colleague Daniel Geer answered, "I, too, tried the online florist and sent flowers to my mother. I was slightly worried about it, but not unduly".

When it came to Allan Schiffman, he replied, "Well, believe it or not, I also used the florist to send flowers to my mother. I wasn't the least bit worried about the security issues though – I used Daniel Geer's credit card!"

These exchanges took place during a conference session entitled 'Towards Better Security for the Internet', which looked at users' fears about the transportation of sensitive information across what is basically an insecure network. Hosted by Jeff Schiller, a security expert from MIT, the meeting gave users a forum for their views on the importance of security for commercial transactions.

What soon became apparent was that, although everybody realises the potential for security breeches arising from the 'sniffing' of Internet packets, and indeed agrees that the situation should be improved, this isn't stopping users buying and selling online.

For example, if I use my credit card to order goods or services over the phone, there is no guarantee that the person I am talking to is who they say they are, or that my details are going to be kept confidential. Likewise, credit card slips can end up in the rubbish bin at the back of the shop – not the most secure destination. Having said all this, credit card number encryption technology has recently been developed and its use is likely to become widespread in the near future.

No excuses accepted

As far as business is concerned, security has to be a priority. Business-to-business transactions, at least, will have to be secure before EDI (electronic data interchange) becomes commonplace across the Net, but it seems that the issue is currently being used as an excuse for companies not to invest in Internet-related technology.

So assuming there are consumers willing to trust their hard-earned savings to the ether, how do service providers and retailers find them? The obvious approach is to advertise, but this is not necessarily a good idea if vendors want to make friends and influence people.

Marketing models that work in the real world do not necessarily translate well to the virtual – the Internet community does not like being sold to, nor does it like the idea of commercial concerns invading the bandwidth and disk space hither to reserved for intellectual pursuits and information exchange. However, there are a few fundamentals that seem be effective when dealing with online punters.

Gently does it

Do not advertise directly to users by means of junk email or unsolicited Usenet postings. Rather, publicise pointers to resources and make them so interesting users will follow up. For example, if XYZ Motors wants to sell its new car on the Net, it could post a message to the relevant Usenet newsgroups announcing that a Web server had been set up. The best way to do this is to only submit a subject line, not an entire advert, as this will almost certainly provoke an inbox full of obscene messages and 'flames' protesting the inappropriate use of valuable Internet bandwidth. The subject line could be something short but explicit, such as `New Virtual Car Showroom at http://XYZ.m.com`

This entry should promote enough interest to have users queuing up to access the pages. The Web pages themselves could contain text, pictures, videos and sounds related to the company's products.

This may in itself still seem like advertising, but the crucial difference is that users have the choice of whether to look at the information or not.

Employ a pusher

One popular analogy is that of the drug pusher. This method posits that if you offer a service to users for free, they will learn to rely on it. When you then start charging for it, users are more likely to pay. This is a popular model being used by many Web servers offering valuable information, such as news or databases. For the first few months, and while bugs are being ironed out, access is totally free, but later a charge is introduced.

The bottom line, though, is take care when offering commercial services or advertising via the Internet. It's an effective tool for reaching large numbers, at little cost, but this also means you can offend just as many people, just as quickly.

There is already a flourishing commercial portion of the Net. Indeed commercial users recently overtook academic users in terms of numbers, so look at what the successful sites are doing and copy it. Eventually, the Net community itself will settle into ways of doing business, but until it does, tread carefully. `<end>`

The best way of appealing to the Internet community is to set up Web pages which offer users something concrete

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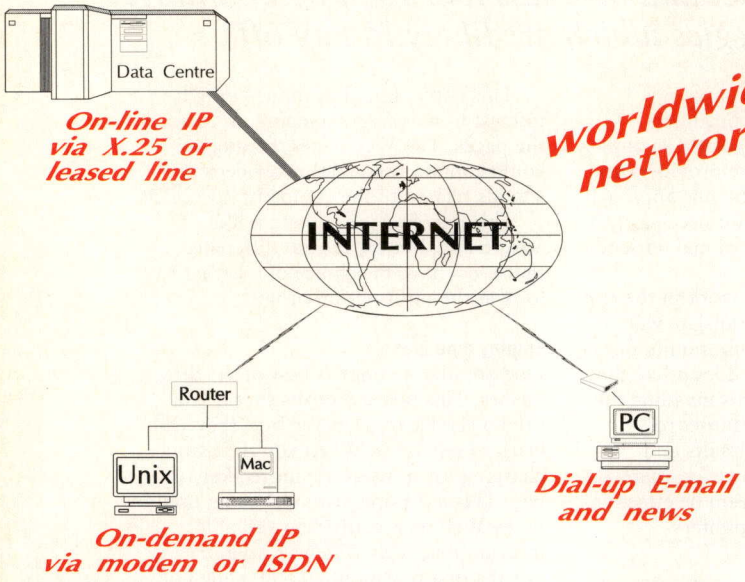

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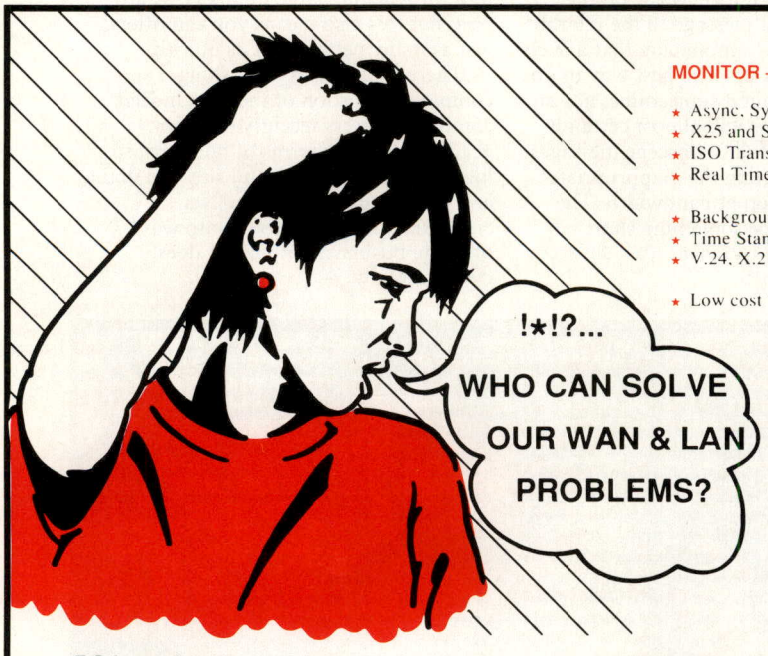

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Showcasing the talents of email

Electronic mail access to the Internet can be used for more than mere messaging. Jason Manger shows how to use it to download files, join newsgroups, and more

Electronic mail is without doubt the most fundamental application of the Internet and generates the second largest amount of traffic.

A notable problem that plagues the email world is that it is inherently text-based; in other words all messages passed via this medium must be plain ASCII text. ASCII, or American Standard Code for Information Interchange, is a double-edged sword. It does offer the computing world a universally accepted electronic file format but, on the downside, its content can be nothing more than strings of characters.

At the end of the day the Internet is mainly about communication for the masses. However, you may be surprised at the capabilities of email beyond the exchange of simple text messages. It can be used effectively for many other purposes, including downloading files via FTP (file transfer protocol), reading Usenet messages, performing file searches with Archie and subscribing to Bitnet news lists.

FTP via email: FTPMail

FTP is the tool that generates the most traffic on the Internet. It is a file distribution tool that can upload and download files from Internet hosts to your own computer and has the advantage over email in that it allows both binary and ASCII files to be transmitted – it deals with seven-bit, ie ASCII, and eight-bit data transfers.

Clearly, in order to use FTP you must have access to an FTP program. Anonymous FTP, a standard tool found on nearly every Unix-based Internet host, is a way of gaining access to publicly available files without being registered on the host in question. (Anonymous FTP users log in with the user name `anonymous` and make their email address their password.)

The FTP application itself is a standard tool found on nearly every Unix-based Internet host. PC users will have an equivalent command; type `ftp` and see what happens. Internet users with just email connectivity can also access FTP via FTPMail. This is a service to which you mail a request for a file.

The ASCII message you send is therefore a sequence of instructions to download a file from an FTP site. FTPMail sends you back the file as soon as possible, perhaps the same day if you're lucky.

Coding and decoding

ASCII files are no problem, although binary files will be returned in an encoded form using a technique known as UU-encoding. This is, in essence, a binary-to-ASCII file conversion and is used extensively on the Internet to transmit images and compressed files. In order to return the files to their original form you must have access to a UU-decoding tool.

Popular utilities include Uudecode and Uud, both of which are available from the Internet via FTP or FTPMail (visit `ftp.demon.co.uk` in the directory `/pub/ibmpc/uucode` for a selection of utilities). The tool uuencode is in fact a standard Unix command which comes as part of UUCP (Unix-to-Unix Copy Program), an older communications tool for dial-up Internet email access. It is worth getting hold of both a UU-encoder and decoder so that you can send and receive binary files via email.

Conventional FTP is inflexible when it comes to sending messages to different people, since the concept is completely different. FTP requires a computer with a public upload directory in which files can be stored. If you are uploading files to different sites (ie to different people), you have to issue multiple FTP requests to perform each upload. With email you can compose your message (remembering to UU-encode it first if the file is non-ASCII, for instance a WordPerfect document or an Excel spreadsheet) and then send this to as many recipients as you like.

You can do this using your email program's carbon-copy feature, which allows additional message recipients to be included. Conventional FTP relies on the user to enter a series of commands in order to retrieve the file(s) they require. All FTP requests require the user to: (i) log into the FTP site on which the file(s) they want are stored; (ii) move to the directory in which the file(s) are stored; (iii) download the files in binary or ASCII format; and (iv) log out from the FTP server. Here is a typical ftp session:

```
net> ftp ftp.demon.co.uk
Trying 158.152.1.69:21...
FTP session 1 connected to
ftp.demon.co.uk
220- Welcome to Demon Internet's ftp
archive.
220 dis FTP server (Version wu-
2.4(7) GT Tue Aug 9 16:09:25 BST
1994) ready.
Enter user name: anonymous
331 Guest login ok, send your
complete e-mail address as password.
Password: <your e-mail name>
230 Guest login ok, access
restrictions apply.
ftp> cd /pub/books/reviews
250 CWD command successful.
ftp> get cppbl.txt
226 Transfer complete.
ftp> 200 PORT command successful.
150 Opening ASCII mode data
connection for cppbl.txt (56291
bytes).RETR cppbl.txt: 56291 bytes
in 50 sec (1105/sec)
ftp>quit
```

In this FTP session we have FTP'd to the anonymous FTP site at `ftp.demon.co.uk` and have downloaded the ASCII file `cppbl.txt` that resides in the directory `/pub/books/reviews`. The file being downloaded is ASCII in this instance (coincidentally, the default mode for FTP – see line 150), although if the file was binary, we would have had to issue the FTP's binary command before downloading the file, for example:

```
ftp> binary
ftp> get archive.zip
```

To perform the equivalent operation via FTPMail we first have to know the address of an FTPMail site to handle our request. Some common hosts that deal with FTPMail are `ftpmail@decwrl.dec.com` and `bitftp@pucc.princeton.edu`

In addition, we would also have to learn a few FTPMail commands to tell the site which site we want to visit, the file to download and whether or not to treat it as a binary or ASCII file etc. Most FTPMail

servers use a common set of commands, although these can differ slightly. The main FTPMail commands to learn are shown in the box.

To connect you to an FTP host (anonymous login assumed)
connect<hostname>
To enable binary mode (as in FTP)
binary
To UU-Encode the file (the default is btoa, not UU-encode)
uuencode
To compress the file using the Unix compress format
compress
To change directory to <directory>
chdir <directory>
To show a directory listing for directory [directory]
dir [directory]
To download the file <file>
get <file>
To quit the FTPMail server
quit

The equivalent FTPMail commands to download the ASCII file in our previous FTP session would be as follows:

```
connect ftp.demon.co.uk
chdir /pub/books/reviews
get cppbl.txt
quit
```

All of these four commands should be placed in the body of your email message and mailed to the appropriate FTPMail email address, eg `ftpmail@decwrl.dec.com`

However, binary files are different. The uuencode and binary commands should always be used, if possible. By default, FTPMail servers tend to encode binary files in a format known as BTOA (binary-to-ASCII), which is similar to a UU-encoded file. It has the same name in Unix but is harder to find for DOS.

UU-decoders are ubiquitous on the Internet, so remember to specify the uuencode option as well as the binary option. If we were to download the hypothetical binary file named `archive.zip` we would have to format our email message slightly differently, for example:

```
connect ftp.demon.co.uk
chdir /archives/zip
binary
uuencode
get archive.zip
quit
```

UU-encoded files are often broken down into chunks (or segments) of around 60K in size, because some Internet email gateways can't handle large files.

Most UU-encoders can break up large files into manageable segments without any problems, although putting the file back together may require additional effort. Many UU-decoders will process multiple segments, although the pieces of the file may need manual editing. In fact, it may be best to reassemble it into one large ASCII file, save it and then UU-decode it.

Accessing Usenet via email

Usenet (Users Network) is a collection of nearly 10,000 newsgroups, or forums, where every topic known to humankind is discussed. Usenet is made up solely of email messages, posted from Internet users all over the world. More than 200 Mb of text and UU-encoded images pass over the Internet daily.

Usenet newsgroups are broken down into hierarchies, for example `alt.binaries.pictures.misc` is a hierarchy called alternative which deals in miscellaneous binary pictures.

In order to post messages to Usenet you require a suitable newsreader, such as nn, rn and tin. Users with email-only access can also post using the email-Usenet gateway at `cs.utexas.edu`

To do this, simply compose the message, be it ASCII or binary. In order to post the message you must alter the name of the Usenet group to which you want to send your contribution by changing all full stops to hyphens. So `alt.binaries.pictures.misc` becomes `alt-binaries-pictures-misc` and you send the message to `alt-binaries-pictures-misc@cs.utexas.edu`

Reading Usenet messages via email is slightly trickier, however. Some postings to Usenet groups are stored as compressed files on anonymous FTP sites, so an Archie search may reveal a collection of postings. Because Usenet is so large, it is somewhat impractical to allow email access and access to a NNTP (Network News Transfer Protocol) server is a better idea.

Finding files via email: Archie

Archie is the Internet's file-indexing service, an excellent tool that is invaluable for Internet users. Because the Internet is so vast, finding the file(s) you require can be tiresome. To overcome this, Archie maintains an index of files available from the majority of anonymous FTP sites. The index is kept up-to-date and files are deleted, moved and renamed over time.

By emailing the user Archie at a well-known Archie host, eg `archie.doc.ic.ac.uk` in the UK, you can place a request for a file search. Archie is normally an interactive program, although you can also Telnet to many Archie servers (use the username `archie` to log in with).

When querying Archie via email, the `prog` command is used to start a search for a particular file. For example you could structure an email message simply as `prog zip` and Archie would search for a file whose name contains the word `pkzip` (perhaps PKZIP, the file compression utility used widely over the Internet).

Remember, because Archie searches all of the filename, the extension of a file may also match the expression you use, so you could perhaps search for `.ZIP` files as well.

Directory files are also matched in searches. The string you specify to the `prog` command also accepts wildcards, so for example you could specify a search pattern of `news*` to match a file or directory named news or newsreader. The results mailed back to you will include the host and directory where any files matching your search pattern are stored. You can then use FTP (or FTPMail) to download the required file(s).

List servers: Bitnet

Bitnet groups are similar to Usenet, indeed many are available to Usenet users via the `bit.*` hierarchy. Bitnet (Because It's Time Network) is a network of computers that exchange mailing lists. Each is maintained by a lists server that allows users to subscribe to the list and receive regular updates – new messages.

Just like Usenet, many topics of interest are available. To subscribe use `SUBSCRIBE <list-name> <your full name>`. More importantly, if you want to un-subscribe from a list, send some mail containing the command `UNSUBSCRIBE <list-name>`.

A review command also exists to allow you to examine a group to see what information it actually carries before subscribing to it. To do this issue the command `REVIEW <list-name>`.

The names of list server groups can be found by emailing `listserv@bitnic.educom.edu`. The Usenet group news.lists also list Bitnet and Usenet groups.

Now, what about list server commands and hosts? Many hosts accept list server requests, including the hosts `listserv@cunyvm.cuny.edu` and `listserv@bitnic.educom.edu`. So, for example, to subscribe to the Bitnet group `c+health` (Computers and Health) you would include the following in your email message (leave all the other fields empty): `SUBSCRIBE c+health Anne Other`, where `c+health` is the Bitnet group to subscribe to and `Anne Other` is the person's full name (your name and not an email address).

Eudora, a popular shareware email package, is now available commercially from Qualcomm

If you are a Usenet user you can access any Bitnet group by looking in the `bit.listserv.*` hierarchy, for example `bit.listserv.c+health`. Remember that Bitnet, unlike Usenet, is really a mailing list that people subscribe to, so it's much more organised and regulated.

Some other useful list server commands are `LIST GLOBAL` (which sends a list of over 300 Bitnet groups) and `LIST GLOBAL/keyword` where `keyword` is a match pattern, eg `LIST GLOBAL/dbase` to return only those groups with `dbase` in them. <end>

Jason Manger is author of *The Essential Internet Information Guide* and *The World Wide Web, Mosaic and More*, both published by McGraw-Hill. He can be reached at `wombat%spuddy@uunet.uu`

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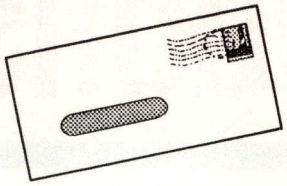

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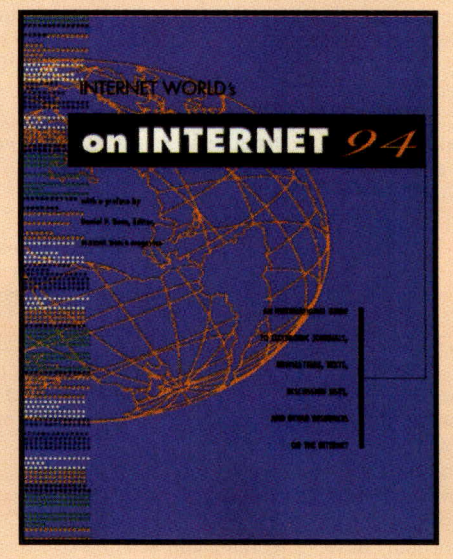

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Q: HOW DO I GET ON THE INTERNET?

The question in the minds of most people interested in the Internet is: how do I get connected? Although different aspects of getting online are covered in other parts of the magazine, we thought it might be useful to give readers a simple reference guide to the process.

STEP 1: Have a clear idea of what sort of access you want. Do you just need email? Email and Usenet news (ie UUCP)? Or full IP access (ie WWW, FTP etc)?

STEP 2: If possible, find a friend that has Internet access and have a play. You will fare a lot better with access providers if you know exactly what you want.

STEP 3: Contact several Internet access providers and compare the different advice they give. Don't go with the first provider you talk to but shop around and see what each company advises.

STEP 4: Once you have decided on the type of service, make sure the company you choose has a Point of Presence within your area. It is no use securing an ultra cheap deal with a company if you have to make a long distance call to reach its POP.

STEP 5: Find out from the access provider exactly how much support, on-site maintenance and software you will receive as part of your contract. It can work out very expensive to think about these things after you get connected.

STEP 6: All you need to get going is already on the Internet so, as far as possible, experiment with your connection using shareware software. You can decide later what software is worth buying after you have gained some experience.

STEP 7: Once online, don't try to run before you can walk. Spend time reading newbie documents and help files.
Take a look at the relevant FAQ (frequently asked questions) files before posting to newsgroups – most questions have been asked, and answered, already.

STEP 8: Have fun and try not to abuse Net resources.

FREQUENTLY ASKED

Questions and answers

Don't be afraid to ask, because this is where agony uncle Marc Nicholas answers all your questions about the Internet. Send your queries to internet@computing.emap.co.uk

Q If I connect to a server abroad, for instance in the States, does it cost me more in telephone calls?

A No, you only pay the cost of the call to your Internet provider's nearest access point or POP (point-of-presence).

The Internet provider builds the cost of connection to the outside world into its service fees, which means that you can connect to a server in Tokyo for the same price as a server in Birmingham.

There are some exceptions to the rule, but they normally only apply to actual service providers which are buying backbone access.

Q Sometimes when I log on to an FTP server, it is OK, but at other times I don't seem to be able to connect. Why is this?

A Most FTP servers are machines on academic or commercial sites that are relied upon to do real work as well as FTP.

System administrators often set a limit on the number of users who can connect via FTP at any one time, so that the performance of these network machines is not adversely affected.

If you try and connect to a machine that is too busy, you won't be allowed access.

Q I have found that when I link up to a server in the UK, the access seems faster than one in another country. Am I imagining it or is this right?

A Because international telecom circuits are so expensive, there is generally much more bandwidth available locally than internationally.

This is also one of the primary reasons for 'mirroring' FTP sites. A system administrator writes a script that copies a whole FTP site to his or her site, monitors the remote site for changes and then copies them when they occur.

Because this process only transfers files once (or when the change happens), it saves bandwidth and the user gains from being able to access a local machine at a resulting higher speed.

Q I wonder if you could explain to me what a mailing list is? I think I'd like to be on one.

A A mailing list relies on a piece of software, sitting somewhere on a computer, to distribute a piece of mail sent to it to a group of other computers.

Mailing lists normally have a very specific special interest topic and would-be users send a piece of email to the mailing list address with the word `subscribe` in it to subscribe to the desired list.

Q I've seen the term IRC used a lot. Can you please explain what it means?

A IRC stands for Internet relay chat and is best described as a cyberspace version of CB radio. It's a real-time talk system that's split into 'channels'. By joining a specific channel, you can take part in that public discussion.

You can also talk privately to users, exchange binary files and even set up your own topic channels about your favourite subjects.

IRC is a distributed system running on many IRC servers which are all connected together. Sometimes the links between several machines die, usually for network or load reasons, and a phenomenon known as a 'netsplit' occurs, resulting in users from either side of a 'split' being separated.

IRC clients for DOS, Windows, Unix and Macintosh exist and some sites offer a Telnetable IRC client allowing a standard Telnet session to be used.

Q If I have an Internet account, will I be able to use it all around the world, wherever I am?

A The answer is yes and no. It really depends on exactly what kind of Internet account you have.

If you just have shell access to your email, you can normally Telnet to that account from anywhere where you can get shell access.

If you receive email via SLIP or PPP using the SMTP system, you will not be able to receive your email at a remote location. However, if you receive email via SLIP or PPP using the POP2 or POP3 system, you can get your email from any location where you can get a direct TCP/IP connection.

Q Are the new commercial versions of Mosaic any better than the versions which are free?

A The advantage of a paid-for version of any bit of software is that you get support from the vendor, and this is, of course, true with Mosaic.

Another thing to bear in mind is that most of the commercial versions of Mosaic actually have code licensed from the NCSA in them. Thus, the core functionality of these programs is almost identical – it's the more esoteric features that vary.

Q I am wondering if there is a list of FAQs available? It would really make my life easier if there was.

A Finding a list of all the FAQs (frequently asked questions) is impossible; there are just too many, covering too many subjects and from too many sources.

However, various UseNet groups post FAQs from time-to-time, plus many FTP sites carry RFC (request for comment), FYI (for your information) and other FAQ-type documents.

Q I only have email access to the Internet. Is it still possible to obtain a copy of NCSA Mosaic?

A There are a couple of FTP email gateways on the Internet. Probably the best idea for UK users is to use the one run by Imperial College in London (Imperial also runs a rather good FTP site at `ftp.doc.ic.ac.uk`).

To use it is simple, just send email to `ftpmail@doc.ic.ac.uk` with the word `Help` as the first part of the message.

You will have to write an FTP script to access the NCSA FTP site and get the copy of Mosaic that you want.

A script for retrieving a file might look like this:

```
open <sitename>
cd <directory>
get <filename>
quit
```

Enter this as the body text of your message. To obtain a listing of a directory on a site, use the following:

```
open <sitename>
ls
quit
```

You can also optionally specify whether you want the file UUencoded before it's mailed back, or even compressed.

See our email feature on page 311.

Q Can you help with this puzzle? I am trying to send to a friend whose address is `clark@net.a1@atc.boeing.com`. Of course the system considers the two `@`s illegal and I get nowhere. He can send to me OK and his return address is shown as `"a::clarka"@net.a1r.boeing.com`. However when I use the reply mode the message will not go through. Do you have any suggestions on the syntax to use? The local system operator is foxed as well.

A Yes, the syntax of that email address is invalid and the two @s will confuse the mailer on your site.

You might want to find out whether your friend connects to the Boeing host machine using UUCP. If he does, his correct address will be `clark!net.a1@atc.boeing.com`

It could be that the `atc.boeing.com` host is set up to embed an `@` rather than the more common `!`.

Q I see that Mosaic is increasingly becoming the standard for Internet access. I run a Macintosh Colour Classic with a V42.bis MNP5 modem and am tempted to change to Mosiac but I am concerned that it will be too slow. Does the speed of the CPU make any difference or is the most important factor a fast modem?

A There are many factors that affect the performance of a SLIP or PPP Internet connection, including the bandwidth available at the Internet provider, the modem speed and the CPU speed.

To get the best out of a 14,400bps modem, you generally switch on data compression and error correction (V.42bis and V.42 respectively). Because the modem is actually trying to compress the data, you need to feed it faster than the carrier rate. So 14.4K modems generally support serial speeds of 38.4K and 57.6K.

My personal preference is MacWeb from EINet, which also does a sister product for Windows called WinWeb. Both have support for forms, which is good news for Mac users who don't wish to use the beta version of Mosaic version 2.

Your Macintosh will support both those speeds via its serial port, but will probably have problems sustaining that sort of throughput. The simple answer is that the above scenario will work but, like most things, if you can afford a bigger, better machine it'll work a little better.

Q A friend of mine has a CompuServe account. Can I send email to him via the Internet? His address consists of numbers and I don't know how to deal with them.

A Yes, Compuserve runs a gateway between its proprietary email system and the Internet. Your friend's Compuserve address will probably look something like `4912,78912`. What you need to do is replace the comma with a full stop and then add the words `@compuserve.com` to the end of it, so that you finish up with something like this `4912.78912@compuserve.com`

A similar process applies if you wish to send email to users of America Online, just add the words `@aol.com` to the end of the username.

Those people who use Apple's AppleLink system can receive Internet mail by adding `@applelink.apple.com` to their user name.

MCI mail can be accessed appending the user number with the words `@mci.com` <end>

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BEING HONEST IS LIABLE TO CREATE HEADLINES...

Business and the Internet will be awkward companions until a few legal infrastructure issues are ironed out. The Internet is too new and it moves too fast for the staid processes of the law to get ahead or even keep up most of the time.

With this column, written by Paul Lavin, who has a doctorate in jurisprudence, we will try to provide practical guidance for business Internet users where the law is unsettled.

To kick-off, we will address a frequently asked legal question: what is the liability of a business, its management and directors, if unlawful material is collected using their Internet connection and stored on a company computer?

In September this year a multi-national company in Milton Keynes had a run-in with Scotland Yard's Obscene Publications Squad. The case concerned 40 obscene photos stored on the company's computer by a 23-year-old male employee. The company, which will not be named until the Crown Prosecution Service files charges, blew the whistle for the coppers to come in. Their former computer graphics expert was found to have been corresponding over the Net with someone in Birmingham who was recently accused of using Birmingham University's system to store 13,500 pornographic images.

According to the police, images held on a computer in digital form are the equivalent of photographs, negatives or printed material, and there is little comfort for computer users or owners in the fact that unlawful images stored on a hard disk are not directly viewable. If the images are encoded or password locked, they are still unlawful.

Scotland Yard acknowledges that the Internet carries just about all varieties of human expression through hundreds of countries and legal jurisdictions and that police everywhere are powerless to stop strings of binary digits. Their entré is when the information is stored in Britain and contravenes the Official Secrets Act, the Obscene Publications Act, the Protection of Children Act, or contains material that is otherwise unlawful (for example pilfered proprietary data, copyrighted material, defamatory matter or seditious tracts). In discussing the matter of a company's exposure to prosecution with Scotland Yard, a police source compared an Internet server with an automobile. If a car is stolen and breaks the speed limit, the owner cannot be prosecuted for the offence. However, if the owner conspires with the driver to break the law, then a chargeable offence may have been committed.

In the absence of clear-cut legal precedent or guidelines, common sense is the bottom line. A company policy should be created that makes downloading or storing material likely to be deemed unlawful a dischargeable offence. As a system administrator or director, it is not up you to interpret the finer points of the law so no further specificity is required in your regulations.

If you are unlucky enough to find such material on your system there are several courses of action you could take: delete the material, discharge the employee or call in the police. Recognise, however, that you may be creating headlines for yourself if you take the last option.

An ounce of prevention may be worth a pound of cure and Novix has just released an Internet/NetWare product that will allow the screening of potentially unlawful Internet newsgroups or email addresses (see News, page 6). If used properly, this could keep a company's computer resources from being misused and avoid uncomfortable interviews with the Bill.

THE GLOSSARY

Acronyms abound and the terminology can be confusing, but the **INTERNET** *Glossary makes sense of it all*

10Base-T
The IEEE 802.3 specification for cabling which specifies using unshielded twisted-pair cable running at 10 Mbps, with a distance limit of 100m per segment.
56 Kb line
Actual capacity of a 64 Kbps channel.
64 Kb channel
The lowest level of the digital hierarchy, a single 64 Kbps voice or data channel.

agent
A part of the system that performs information preparation and exchange on behalf of a client or server application.
anonymous FTP
A service that makes files available to the general Internet community, FTP allows files to be transferred to or from a host, without the need for a user ID on that host (also known as anon FTP).
ANSI
American National Standards Institute, a member of the International Organisation for Standardisation (ISO).
API
Application Program Interface, a set of calling conventions that defines how a service is invoked through a software package.
application
Software that provides a set of services such as electronic mail or file transfers.
Archie
A service that provides a quick, easy way to scan the offerings of countless anonymous FTP sites.
ARPANET
Advanced Research Projects Agency Network, a packet-switched network developed in the early 1970s. The grandfather of today's Internet, it was decommissioned in June 1990.
asynchronous transmission
A method by which data is transmitted from one communication device to another. Data is sent one bit at a time. Each character is framed by a start bit and a stop bit and is not dependent on the timing between the transmitter and the receiver.

backbone
The primary connectivity mechanism of a hierarchical distributed system. All systems that connect to an intermediate system on the backbone are assured of connectivity to each other. This network does not prevent systems from setting up private arrangements with each other to bypass the backbone for reasons of cost, performance or security.
baseband
A characteristic of any network technology that uses a single-carrier frequency and that requires all stations attached to the network to participate in every transmission. See broadband.
baud rate
The actual frequency being used to transmit data. Often used incorrectly as an equivalent to bits per second (bps). For example, both ITU-T V.22bis (2400 bps) and V.22 (1200 bps) modems transmit data at 600 baud, but V.22bis modems use four bits per symbol and V.22 modems use two.
BBS
Bulletin Board Service, an electronic host system that posts news, discussion groups and email. BBSs are typically accessed via analogue dial-up modems.
bit
A contraction of 'binary digit', the smallest unit of information in a binary number system. Eight bits are needed to create one byte or character.
bps
Bits per second, the speed at which bits (electronic signals) are transmitted.
bridge
A device that connects two or more physical networks and forwards packets between them. Bridges can usually filter packets, ie only forward certain traffic. Related devices are repeaters, which simply forward electrical signals from one cable to another, and full-fledged routers, which make routing decisions based on several criteria.
broadband
The characteristic of any network that multiplexes various independent network carriers onto a single cable. Multiplexing usually occurs by dividing frequency. Broadband technology allows several networks to coexist on one single cable. Traffic from one network does not interfere with that from another because the conversations happen on different frequencies, as they do on commercial radio systems.
broadcast
A packet-delivery system in which a copy of a particular packet is given to all hosts attached to the network. An example is ethernet.

CCITT
International Consultative Committee for Telegraphy and Telephony, previously a unit of the International Telecommunications Union (ITU) of the United Nations, now known as ITU-T.
CIX
Commercial Internet Exchange, a working consortium of carriers that provide Internet services to the commercial marketplace (not to be confused with the UK BBS of the same name).
client/server model
A common way to describe network services, the programs of those services, and the way they relate to each other.

datagram
A packet that holds data to be transmitted on a network. See IP datagram.
dial-up
Method of using PSTN or ISDN to connect computers over modems with remote lan access routers and/or terminal servers.
DNS
Domain Name System, the distributed name/address mechanism used in the Internet.
domain
Part of an Internet naming hierarchy. Syntactically, an Internet domain name consists of a sequence of names (labels) separated by full-stops; for example, `tundra.mpk.ca.us`
dotted-decimal notation
The syntactic representation for a 32-bit integer that consists of four eight-bit numbers written in base 10 with periods separating them. Used to represent IP addresses in the Internet, as in 192.67.67.20. See IP.

encapsulation
The technique used by layered protocols in which a layer adds header information to the protocol data unit (PDU) from the layer above. For example, in Internet terminology, a packet would contain a header from the physical layer, followed by one from the network layer (IP), followed by another from the transport layer (TCP), followed by the application protocol data.
See PDU, IP, TCP.
ethernet
A physical medium for transmitting lan traffic at speeds up to 10 Mbps.

FAQ
Frequently Asked Questions documents are files scattered around the Internet to convey information on practically every subject. The logic behind them is that if somebody needs to know the answer to a question, chances are another user will have already asked it and found an answer already.
FDDI
Fibre-Distributed Data Interface, an emerging high-speed networking standard. The underlying medium is fibre optics and the topology is a dual attached, counter-rotating token ring. You can spot FDDI networks by their orange fibre cable. See token ring.
flame
To express strong opinion and/or criticism of something, usually as a frank, inflammatory electronic message.
FidoNet
A network of electronic bulletin board services.
finger
A method of accessing a site to receive an automatic response.
firewall
A network security device which, when penetrated, closes the gateway to the network.
fragmentation
The process of breaking down an IP datagram into smaller pieces to fit a given physical network's requirements. The reverse process is called reassembly.
frame relay
A fast-packet technology that offers switched virtual transmission services at speeds up to T-1.
freenet
Typically a local Internet access service and/or bulletin board service offered free of charge.
FTP
File Transfer Protocol, the Internet protocol (and program) used to transfer files between hosts.

gateway
A computer system that transfers data between normally incompatible applications or networks. A gateway reformats the data to make it acceptable for the new application or network before passing the data on.
Gopher
An interactive fileserver system that offers menu-based capabilities for browsing Internet resources.

HTML
HyperText Markup Language, a language for writing WWW pages.

IAB
Internet Activities Board, the technical body that oversees development of the Internet suite of protocols (commonly referred to as TCP/IP).
IEEE
Institute of Electrical and Electronics Engineers.
IESG
Internet Engineering Steering Group, the executive committee of the IETF.
IETF
Internet Engineering Task Force, one task force of the IAB. It is responsible for solving the short-term engineering needs of the Internet and has more than 40 working groups.
IGP
Interior Gateway Protocol, the protocol used to exchange routing information between collaborating routers on the Internet.
internet
If not capitalised, internet refers to any collection of distinct networks interconnected by routers that allow the networks to operate as one internetwork.
Internet
When capitalised, Internet refers to the worldwide network of networks connected to each other using the IP protocol suite. The Internet provides file

transfer, remote login, electronic mail, news and other services. To be on the Internet, you must have IP connectivity, ie be able or ping other systems. Networks with only email are not actually classified as on the Internet.

Internet address
A 32-bit address assigned to hosts using TCP/IP. See dotted-decimal notation.

Internet mail agent
Software that allows two or more electronic mail systems to connect and transfer data.

IP
Internet Protocol, the network-layer protocol for the Internet protocol suite, is the most important protocol on which the Internet is based. It allows a datagram to traverse multiple networks on the way to its final destination.

IP datagram
The fundamental unit of information passed across the Internet, an IP datagram contains the following: source and destination addresses, data and fields that define such things as the datagram's length, the header checksum, and flags to say whether the datagram can be, or has been, fragmented.

IPX
Internetwork Packet Exchange, the underlying protocol in Novell NetWare.

IRC
Internet Relay Chat is best described as a cyberspace version of CB radio. It is a real-time talk system that's split into 'channels'. By joining a specific channel, you can take part in that public discussion.

ISDN
Integrated Services Digital Network, an emerging technology being offered by the telephone carriers of the world. ISDN combines voice and digital network services into a single medium, making it possible to offer customers digital data as well as voice services through a single wire, at speeds of up to 64 Kbps per channel.

ISO
International Organisation for Standardisation.

ITU-T
An organisation with representatives from the PTTs of the world which produces technical standards.

Kermit
A popular file transfer and terminal emulation program.

lan
Local Area Network, a group of computers that are located in one area and connected together.

leased line
A dedicated circuit (private telephone line) between two locations, constantly available for transmission of data or voice.

mail gateway
A machine that connects two or more electronic mail systems (especially dissimilar ones on two different networks) and transfers messages between them. Sometimes the mapping and translation is quite complex, requiring a store-and-forward scheme, whereby the message is completely received from one system before it is transmitted, after suitable translation, to the next system.

Martian
Humorous term applied to packets that turn up unexpectedly on the wrong network because of bogus routing entries. Also used as a name for a packet with an altogether bogus (unregistered or ill-formed) Internet address.

MHS
Message Handling System, the system of message-user agents, message-transfer agents, message stores and access units that together provide OSI electronic mail.

modem
Data communications equipment that converts a computer's digital signals to analogue signals that can be transmitted over standard telephone lines. Digital and cellular modems allow data to be transmitted over both fibre optic and microwave media as well.

MTA
Message Transfer Agent, an OSI application process used to store and forward messages in the X.400 message handling system. Equivalent to Internet mail agent.

MTU
Maximum Transmission Unit, the largest possible unit of data that can be sent on a given physical medium. For example, the MTU of ethernet is 1500 bytes. See fragmentation.

multicast
A special form of broadcast in which copies of the packet are delivered only to a subset of all possible destinations. See broadcast.

multi-homed host
A computer connected to more than one physical data link, that may or may not be attached to the same network.

name resolution
The process of mapping a name into the corresponding address. See DNS.

NetBIOS
Network Basic Input-Output System, the standard interface to networks on PC systems.

network address
See Internet address.

NIC
A Network Interface Card is the hardware within a PC that connects it to the network, ie ethernet adapter, token ring adapter.

NIC
The original Network Information Centre was tasked to serve the ARPANET communities. Today many NICs are operated by local, regional and national networks around the world. Such centres provide user assistance, document service training and much more.

NMS
Network Management Station, the system responsible for managing a network or subnetwork. It talks to network management agents residing in the managed nodes via a network-management protocol. See agent.

NOC
Network Operations Centre, any centre tasked with the operational aspects of a network, ie monitoring, controlling, troubleshooting and assisting users.

node
A computer attached to a network (also called a host).

OSI
Open Systems Interconnection, an international standardisation program to facilitate communications among computers from different manufacturers. See ISO.

OSPF
Open Shortest Path First, a proposed standard IGP for the Internet.

packet
Data encapsulated within a network layer header and trailer for transmission over a network.

PDU
Protocol Data Unit, a segment of an SNMP message which contains the actual data.

ping
Packet Internet Group, a TCP/IP program used to test reachability of destinations by sending them an echo request and waiting for a reply. It's used as a verb: 'Ping host X to see if it is up!'

POP
A Point of Presence is a local network node, set up by a service provider, ie. the physical location where your computer connects to the Internet.

port
The abstraction used by Internet transport protocols to distinguish among multiple simultaneous connections to a single destination host. Also the term for a physical input/output (I/O) channel.

PPP
Point-to-Point Protocol, the successor to SLIP, it provides router-to-router and host-to-network connections over both synchronous and asynchronous circuits. See SLIP.

protocol
A formal description of message formats and the rules two or more systems must follow to exchange those messages.

PSN
Packet-switched Node, the modem term used for nodes in the ARPANET or a Packet-Switched Network.

PSTN
Public Switched Telephone Network.

PTT
Poste de Telephony and Telegraph, the term for national or provincial bodies which provide in-country communications services, including voice, data, satellite and video.

repeater
A device that propagates electrical signals from one cable to another without making routing decisions or providing packet filtering. See bridge, router.

RFC
Request For Comments, the document series, begun in 1969, that describes the Internet suite of protocols and related experiments.

router
A device responsible for making decisions about which of several paths network (or Internet) traffic will follow. The router uses a protocol to gain information about the network, and it uses routing metrics algorithms to choose the best route. See gateway, bridge, and repeater.

service provider
A commercial or publicly funded company that provides connectivity to the Internet through dial-up, leased-line or switched-digital services.

shell
A Unix software program that simplifies command line information processing from a terminal.

SLIP
Serial Line IP, an Internet protocol used to run IP over serial lines, which is now being replaced by PPP. See PPP.

SMTP
Simple Mail Transfer Protocol, the Internet electronic mail protocol.

SNMP
Simple Network Management Protocol, the network management protocol of choice for TCP/IP-based internets.

SQL
Structured Query Language, the international standard language for defining and accessing relational databases.

switched digital
A dial-up transmission service over digital lines such as ISDN. See ISDN.

synchronous transmission
A method by which data is transmitted from one communications device to another. A timer at one end of the communication line tells the device to release the data at a preset time interval.

T1 or T-1
A type of digital carrier system transmitting voice or data at 1.5 Mbps. A T1 carrier can handle up to 24 multiplexed 64 Kbps digital voice or data channels.

T3 or T-3
A type of digital carrier system transmitting voice or data at 44.6 Mbps. A T3 carrier can handle up to 28 multiplexed T1s or 672 multiplexed 64 Kbps digital voice or data channels.

TA
A Terminal Adapter is a device that connects a standalone PC or a network to a wan transport media (especially an ISDN link). The function that it performs is essentially quite similar to that of a modem.

TCP
Transmission Control Protocol, the major transport protocol in the Internet suite of protocols. See IP.

Telnet
The virtual terminal protocol in the Internet suite of protocols, it allows users of one host to log into a remote host and interact as normal terminal users of that host.

TFTP
Trivial File Transfer Protocol, a simplified version of FTP, allowing the file transfer from one computer to another over a network.

three-way handshake
The process whereby two protocol entities synchronise during connection establishment.

token ring
A lan protocol made up of individual links that form a circle. A token is passed around the ring and only the device that has the token can send data.

transceiver
Transmitter-receiver, the physical device that connects a host interface to a local area network such as ethernet.

UDP
User Datagram Protocol, a transport protocol in the Internet protocol suite. UDP, like TCP, uses IP for delivery. However, unlike TCP, UDP provides for the exchange of datagrams without acknowledgments or a guarantee of delivery.

UUCP
Unix-to-Unix Copy Program, a protocol used for communication between consenting Unix systems.

Veronica
An indexing tool that allows Internet users to keep track of the Gopher menus offering specific services and information.

WAIS
Wide Area Information Server, originally a joint project of Apple, Thinking Machines, and Dow-Jones, WAIS servers allow users to simultaneously search multiple databases on the Internet.

wan
Wide Area Network, a network that interconnects multiple systems over various geographic locations.

WWW
World Wide Web, a hypertext system used for locating Internet resources.

X.25
An ITU-T standard that defines the interface between data terminal equipment (DTE) and data circuit termination equipment (DCE). The standard also defines the packet format for data transfers in packet-switched networks.

X.400
The ITU-T (and OSI) set of standards for providing electronic mail over an open network. See MHS.

X.500
The ITU-T (and OSI) set of standards for providing directory services across an open network.

A large proportion of this glossary was taken from The EDU-Net Internet Primer: A Quick Reference Guide and Introduction to the Internet.It was produced by Telebit Corporation, and written by Greg Dumas. Copies of the Primer can be obtained by sending email to kthomas@telebit.com

THE PRACTICAL GUIDE TO WHAT'S ON & WHERE TO GO
INTERNET

PROVIDERS LIST

Get on!

Company name	Telephone number	Email address	Service name
Almac	0324 666336	alastair.mcintyre@almac.co.uk	Gold service
BBC Networking Club	081 576 7799	info@bbcnc.org.uk	BBC Networking Club
Byson Computers	01635 869480	Ian@Byson.demon.co.uk	Standard Dial Up
CityScape Internet Services Ltd	0223 566950	sales@cityscape.co.uk	CityScape IP-GOLD
Compulink Information eXchange (CIX)	0492 641961	cixadmin@cix.compulink.co.uk	CIX Ltd
Compuserve	0800 289378	70006.101@compuserve.com	Compuserve
Delphi Internet Limited	071 757 7080	ukservice@delphi.com	Delphi
Demon Internet	081 349 0063	sales@demon.net	Leased Line Connection
–	–	–	Network Reserved Dial Up
–	–	–	Standard Dial Up
Dungeon Network Systems		dale@dungeon.com	Standard SLIP
ElectricMail Ltd	0223 420193	info@elmail.co.uk	cc:Mail to Internet Connection
–	–	–	MS Mail to Internet Connection
–	–	–	MHS Mail to Internet Connection
–	–	–	IP-Start
–	–	–	IP-Dial
–	–	–	IP-Dial ISDN
–	–	–	IP-Line
EUnet GB	01227 266466	sales@Britain.EU.net	EmalLink
–	–	–	EmailLink + News
–	–	–	IP-Dial
–	–	–	IP-ISDN
–	–	–	IP-Line 64K/128K/256K
–	–	–	IP-Line-X25
ExNet Systems Ltd	081 244 0077	info@exnet.co.uk	Basic
–	–	–	Telnet+FTP supplement
–	–	–	UUCP serive
–	–	–	Full feed service
–	–	–	Live IP
–	–	–	Full Live IP
Foremost Training	041 248 6377	donald@scotnet.co.uk	Scotnet
Pavilion Internet plc	01273 607072	info@pavilion.co.uk	Pavilion Internet
PC User Group	0181 863 1191	info@win-uk.net	WinNEt
–	–	–	CONNECT
Pipex	0223 250120	sales@pipex.net	Caller
	–	–	Worldwide
RedNet Limited	0494 513 333	info@red.net	onLine
The Direct Connection	(081) 317 0100	helpdesk@dircon.co.uk	The Direct Connection

Table Notes

Here follows a guide to using our Internet Access Providers list:

Company name This is the trading name of the company that runs the Internet access service.

Telephone number This is the telephone number each company prefers to use for sales enquiries.

Email address This is the email address each company prefers to use for sales enquiries.

Service name Often the name of the actual service differs from the name of the company providing it. Also, some providers offer more than one service – each name is intended to give some indication of what that service is.

Start-up cost This is a one-off charge paid when a user subscribes to the service. Some providers do not charge a start-up fee.

If you want to start using the Internet for business, the first thing to do is get connected. Here's a comprehensive list of all the UK providers we know about, together with contact details, prices, and service type information. Pricing scales and access methods are changing constantly, so use this list as a guide, and check the information with the provider directly. We recommend you talk to as many suppliers as possible to find the best service for your needs. Any suppliers wishing to update information, send details to neile@computing.emap.co.uk

Start-up cost	Ongoing costs	Type of connection	Modem	ISDN	Leased line	X.25	Aimed at (see key)	Email	FTP	Usenet News	Telnet	World wide web	Gopher	Internet relay chat	Details of service
none	£7.99 pm	ip	✔	✔	×	×	h/s/w/l/e	✔	✔	✔	✔	✔	✔	✔	*Business is focused on "networking Scotland"*
£ 25.00	£12 month	ip	✔	✔	✔	×	h/s/w/l/e	✔	✔	✔	✔	✔	✔	✔	*BBC related information, transcripts, TV listings etc*
£ 12.50	£10 pm	ip	✔	×	×	×	h/s	✔	✔	✔	✔	✔	✔	✔	*The Internet Starter Kit, including Demon connection and Chameleon, costs £179*
£ 50.00	£180 pa	ip	✔	×	×	×	h/s	✔	✔	✔	✔	✔	✔	✔	*Other services available, including UUCP connection*
£ 25.00	£6.25 month +	bbs	✔	×	?	?	h/s/e	✔	✔	✔	✔	✔	✔	✔	*CIX provides a shareware copy of AMEOL for Windows*
26.45	£6 per month	bbs	✔	×	×	×	h/s/w/l/e	✔	×	✔	×	×	×	×	*FTP, WWW and Telnet are in development*
none	£10 4 h/m or £20 20 h/m	bbs	✔	×	×	×	h/s	✔	✔	✔	✔	×	✔	×	*To try, dial 071-284 2424. Enter @D <return>. Username: GODELPHI, password: EMP*
£ 1,000.00	14.4K £200, 64K £400	ip	×	×	✔	×	l/e	✔	✔	✔	✔	✔	✔	✔	*BT leased line cost depends on distance*
£ 750.00	£100 pm	ip	✔	×	×	×	s/w/l	✔	✔	✔	✔	✔	✔	✔	*Lan acess to the Internet*
£ 12.50	£10 pm	ip	✔	×	×	×	h/s	✔	✔	✔	✔	✔	✔	✔	*Shareware software for Amiga, ST and Archimedes also available*
none	£10 pm	ip	✔	×	×	×	h/s/w	✔	✔	✔	✔	✔	✔	✔	*Dedicated dial-up is available from £1500 per year*
£ 1,195.00	£380 pa	ip	✔	×	×	×	w/l/e	✔	×	×	×	×	×	×	*The start-up cost includes the first year's subscription*
£ 2,195.00	£380 pa	ip	✔	×	×	×	w/l/e	✔	×	×	×	×	×	×	*The start-up cost includes the first year's subscription*
£ 950.00	£380 pa	ip	✔	×	×	×	w/l/e	✔	×	×	×	×	×	×	*The start-up cost includes the first year's subscription*
£ 200.00	£250 pa	ip	✔	×	×	×	s/w	✔	✔	✔	✔	✔	✔	✔	*Modem service for 5 users*
£ 300.00	450 pa	ip	✔	×	×	×	l/e	✔	✔	✔	✔	✔	✔	✔	*Modem service for unlimited users*
£ 300.00	750 pa	ip	×	✔	×	×	l/e	✔	✔	✔	✔	✔	✔	✔	*This is a one way ISDN service*
£ 1,000.00	£1250 pa	ip	×	×	✔	✔	l/e	✔	✔	✔	✔	✔	✔	✔	*Custom built e-mail gateways available*
none	£380 pa+	uucp	✔	×	×	×	s/w/l	✔	×	×	×	×	✔	×	*Gateways to cc:Mail, MS Mail and MHS mail available*
none	£580 pa+	uucp	✔	×	×	✔	s/w/l	✔	×	✔	×	×	×	×	*Gateways to cc:Mail, MS Mail and MHS mail available*
£ 300.00	£1800 pa	ip	✔	×	×	×	s/w/l/e	✔	✔	✔	✔	✔	✔	✔	*On-site hardware options also available*
£ 300.00	3000 pa	ip	×	✔	×	×	s/w/l/e	✔	✔	✔	✔	✔	✔	✔	*One way ISDN*
1000/2000/2000	5000/8500/15000	ip	×	×	✔	×	s/w/l/e	✔	✔	✔	✔	✔	✔	✔	*Prices inclusive of leased line and on-site router*
£ 1,000.00	£5000 pa	ip	×	×	×	✔	s/w/l/e	✔	✔	✔	✔	✔	✔	✔	*On-site hardware options also available*
£ 0.00	7pm 1st month free	bbs	✔	×	×	×	h/s/w	✔	×	✔	×	×	×	×	*Fair usage policy applies, each user only 2 hours a day*
£ 0.00	120 pa	bbs	✔	×	×	×	h/s/w	✔	✔	✔	✔	×	×	×	*Includes 10Mb of FTP per day*
£ 0.00	£9 month	uucp	✔	×	×	×	s/l/e	✔	×	✔	×	×	×	×	*2 hour usage limit*
£ 0.00	25 pm	uucp	✔	×	×	×	s/l/w/e	✔	×	✔	×	×	×	×	*No usage limit and domain name*
£ 0.00	20 pm	ip	✔	✔	×	×	h/s/w/l/e	✔	✔	✔	✔	✔	✔	✔	*2 hour usage limit*
£ 0.00	£1000 pa	ip	✔	✔	×	×	h/s/w/l/e	✔	✔	✔	✔	✔	✔	✔	*No time limit*
none	£25 per month	ip	✔	✔	✔	✔	s/w/l/e	✔	✔	✔	✔	✔	✔	✔	*Glasgow based Internet provider*
£ 17.75	£14.75 month	ip	✔	×	×	×	h/s	✔	✔	✔	✔	✔	✔	✔	*Local calls within Brighton via NYNEX Cablecomms*
none	£6.75 pm	uucp	✔	×	×	×	h/s/w/l	✔	✔	✔	✔	✔	✔	✔	*WinNET is an offline system*
£ 10.00	£7.25 pm+	bbs	✔	×	×	×	h/s/w/l	✔	✔	†	✔	†	†	✔	*PC User Group is the home of the Email based Movie Database Server*
£ 250	£ 2,000	ip	✔	✔	×	×	h/s/w/l/e	✔	✔	✔	✔	✔	✔	✔	*Router and modems supplied in Caller Plus*
£ 1,000	£ 9,400	ip	×	✔	✔	✔	h/s/w/l/e	✔	✔	✔	✔	✔	✔	✔	*Worldwide available 64K,128K, 256K*
£ 25.00	£15 month	ip	✔	✦	×	×	h/s	✔	✔	✔	✔	✔	✔	✔	*Expecially skilled in Macintosh integration*
£ 7.50	£10 pm	bbs/ip	✔	×	×	×	h/s/w/l/e	✔	✔	✔	✔	✔	✔	✔	*Specialised mail routing available*

Ongoing costs This is the monthly (pm) or yearly (pa) charge paid for subscription of the service.

Type of connection This is an important entry, as it shows which providers are offering direct Internet access (IP), those that are offering bulletin board services (bbs), and those offering email and/or Usenet only (uucp). Most companies supplying uucp offer an upgrade path to full IP interconnection

Access medium Indicates which communications access methods are supported by this particular service – dial-up modem, ISDN, leased line, or X.25.

Aimed at This entry gives some indication of who the company is aiming a particular service at – home users, small business users, workgroup users, lan users or enterprise-wide networks.

Services available This section is largely irrelevant for full IP connection, as the applications themselves are all available irrespective of the provider. For shell or bbs accounts though, each service is either offered or not at the discretion of the service provider. The common applications are email, FTP, Usenet news, Telnet, World Wide Web, Gopher, Internet Relay Chat.

Details of service This is additional information you may find helpful when deciding which provider to talk to.

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To help us plan our coverage in future issues of **INTERNET**, we would like you to answer the following three questions:

1) What do you think will be the most important Internet issues over the next 12 months? (Prioritise the subjects and add any you feel are missing.)
Addressing (IPng etc)
Censorship
Commercialism
Lan management
Navigation
Pornography
Pricing of services
Security
Seminars / events
Standards ratification
Training
Usability

2) What Internet products and services do you expect to buy over the next 12 months, in each of the following categories?
Hardware (eg modems, routers, ISDN cards, Web servers)
Software (eg TCP/IP, email, Web browsers, etc)
Services (eg CityScape, CompuServe, Delphi, ISDN etc)

3) On a scale of one to 10, how would you rate your Internet knowledge and experience? (1=beginner, 10=expert)

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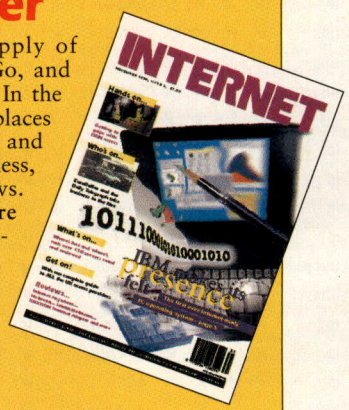

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• Requires only 6Kb of base memory • Implemented as 100% Windows DLL (not a TSR) • Only 5 minutes to install

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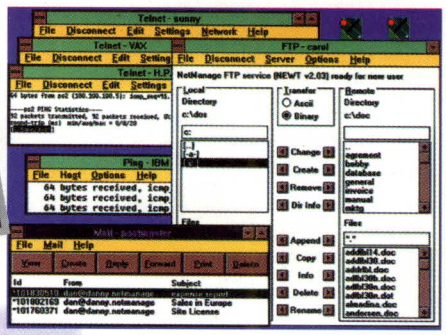

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DOS Applications: *FTP, Telnet (VT100, VT52, TTY), TN3270 (3278/3279), Domain Name Resolver, Ping, TFTP, Netstat, NetBIOS (RFC 1001/1002), RSH, RCP (DOS only), NDIS interface, BSD 4.3 Sockets.*

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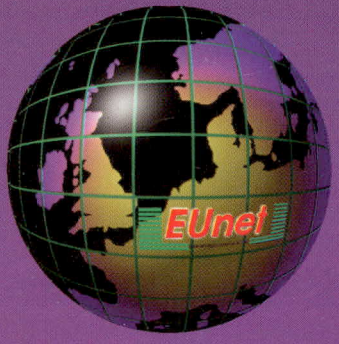

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